



SEQUENCE LISTING

<110> Gish, Kurt C.  
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Wilson, Keith E.  
Afar, Daniel  
Peter, Hevezi

<120> Methods of Diagnosis of Prostate Cancer, Compositions and Methods  
of Screening for Modulators of Prostate Cancer

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<150> 60/276,791

<151> 2001-03-16

<150> 60/288,589

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Tyr Lys Glu Ser Phe Asn Thr Ile Gly Asn Ile Glu Glu Ile Ala Tyr  
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Arg His Met Pro Trp Asn Ile Thr Arg Met Pro Asn His Leu His His  
35 40 45

Ser Thr Gln Glu Asn Ala Ile Leu Ala Ile Glu Gln Tyr Glu Glu Leu  
50 55 60

Val Asp Val Asn Cys Ser Ala Val Leu Arg Phe Phe Phe Cys Ala Met  
65 70 75 80

Tyr Ala Pro Ile Cys Thr Leu Glu Phe Leu His Asp Pro Ile Lys Pro  
85 90 95

Cys Lys Ser Val Cys Gln Arg Ala Arg Asp Asp Cys Glu Pro Leu Met  
100 105 110

Lys Met Tyr Asn His Ser Trp Pro Glu Ser Leu Ala Cys Asp Glu Leu  
115 120 125

Pro Val Tyr Asp Arg Gly Val Cys Ile Ser Pro Glu Ala Ile Val Thr  
130 135 140

Asp Leu Pro Glu Asp Val Lys Trp Ile Asp Ile Thr Pro Asp Met Met  
145 150 155 160

Val Gln Glu Arg Pro Leu Asp Val Asp Cys Lys Arg Leu Ser Pro Asp  
165 170 175

Arg Cys Lys Cys Lys Lys Val Lys Pro Thr Leu Ala Thr Tyr Leu Ser

180

185

190

Lys Asn Tyr Ser Tyr Val Ile His Ala Lys Ile Lys Ala Val Gln Arg  
 195 200 205

Ser Gly Cys Asn Glu Val Thr Thr Val Val Asp Val Lys Glu Ile Phe  
 210 215 220

Lys Ser Ser Ser Pro Ile Pro Arg Thr Gln Val Pro Leu Ile Thr Asn  
 225 230 235 240

Ser Ser Cys Gln Cys Pro His Ile Leu Pro His Gln Asp Val Leu Ile  
 245 250 255

Met Cys Tyr Glu Trp Arg Ser Arg Met Met Leu Leu Glu Asn Cys Leu  
 260 265 270

Val Glu Lys Trp Arg Asp Gln Leu Ser Lys Arg Ser Ile Gln Trp Glu  
 275 280 285

Glu Arg Leu Gln Glu Gln Arg Arg Thr Val Gln Asp Lys Lys Lys Thr  
 290 295 300

Ala Gly Arg Thr Ser Arg Ser Asn Pro Pro Lys Pro Lys Gly Lys Pro  
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Pro Ala Pro Lys Pro Ala Ser Pro Lys Lys Asn Ile Lys Thr Arg Ser  
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Ala Gln Lys Arg Thr Asn Pro Lys Arg Val  
 340 345

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Ser Gly Gly Arg Gly Arg Lys Ile Pro  
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 <212> PRT  
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Ser Ala Arg Ser Phe Ile Ser Arg His Ser Gln Gly Arg Arg Arg Glu  
 35 40 45

Asp Ala Leu Ser Ser Glu Gly Cys Leu Trp Pro Ser Glu Ser Thr Val  
 50 55 60

Ser Gly Asn Gly Ile Pro Glu Pro Gln Val Tyr Ala Pro Pro Arg Pro  
 65 70 75 80

Thr Asp Arg Leu Ala Val Pro Pro Phe Ala Gln Arg Glu Arg Phe His  
 85 90 95

Arg Phe Gln Pro Thr Tyr Pro Tyr Leu Gln His Glu Ile Asp Leu Pro  
 100 105 110

Pro Thr Ile Ser Leu Ser Asp Gly Glu Glu Pro Pro Pro Tyr Gln Gly  
 115 120 125

Pro Cys Thr Leu Gln Leu Arg Asp Pro Glu Gln Gln Leu Glu Leu Asn  
 130 135 140

Arg Glu Ser Val Arg Ala Pro Pro Asn Arg Thr Ile Phe Asp Ser Asp  
 145 150 155 160

Leu Met Asp Ser Ala Arg Leu Gly Gly Pro Cys Pro Pro Ser Ser Asn  
 165 170 175

Ser Gly Ile Ser Ala Thr Cys Tyr Gly Ser Gly Gly Arg Met Glu Gly  
 180 185 190

Pro Pro Pro Thr Tyr Ser Glu Val Ile Gly His Tyr Pro Gly Ser Ser  
 195 200 205

Phe Gln His Gln Gln Ser Ser Gly Pro Pro Ser Leu Leu Glu Gly Thr  
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Arg Leu His His Thr His Ile Ala Pro Leu Glu Ser Ala Ala Ile Trp  
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Ser Lys Glu Lys Asp Lys Gln Lys Gly His Pro Leu  
 245 250

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35 40 45

Gly Lys Trp Ser Gln Thr Ala Phe Pro Lys Gln Tyr Pro Leu Phe Arg  
50 55 60

Pro Pro Ala Gln Trp Ser Ser Leu Leu Gly Ala Ala His Ser Ser Asp  
65 70 75 80

Tyr Ser Met Trp Arg Lys Asn Gln Tyr Val Ser Asn Gly Leu Arg Asp  
85 90 95

Phe Ala Glu Arg Gly Glu Ala Trp Ala Leu Met Lys Glu Ile Glu Ala  
100 105 110

Ala Gly Glu Ala Leu Gln Ser Val His Ala Val Phe Ser Ala Pro Ala  
115 120 125

Val Pro Ser Gly Thr Gly Gln Thr Ser Ala Glu Leu Glu Val Gln Arg  
130 135 140

Arg His Ser Leu Val Ser Phe Val Val Arg Ile Val Pro Ser Pro Asp  
145 150 155 160

Trp Phe Val Gly Val Asp Ser Leu Asp Leu Cys Asp Gly Asp Arg Trp  
165 170 175

Arg Glu Gln Ala Ala Leu Asp Leu Tyr Pro Tyr Asp Ala Gly Thr Asp  
180 185 190

Ser Gly Phe Thr Phe Ser Ser Pro Asn Phe Ala Thr Ile Pro Gln Asp  
195 200 205

Thr Val Thr Glu Ile Thr Ser Ser Ser Pro Ser His Pro Ala Asn Ser  
210 215 220

Phe Tyr Tyr Pro Arg Leu Lys Ala Leu Pro Pro Ile Ala Arg Val Thr  
225 230 235 240

Leu Val Arg Leu Arg Gln Ser Pro Arg Ala Phe Ile Pro Pro Ala Pro

245

250

255

Val Leu Pro Ser Arg Asp Asn Glu Ile Val Asp Ser Ala Ser Val Pro  
 260 265 270

Glu Thr Pro Leu Asp Cys Glu Val Ser Leu Trp Ser Ser Trp Gly Leu  
 275 280 285

Cys Gly Gly His Cys Gly Arg Leu Gly Thr Lys Ser Arg Thr Arg Tyr  
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Val Arg Val Gln Pro Ala Asn Asn Gly Ser Pro Cys Pro Glu Leu Glu  
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 325 330

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Pro Gly Ser Glu Cys Ala Glu Trp Ala Trp Gly Pro Cys Thr Pro Ser  
 35 40 45

Ser Lys Asp Cys Gly Val Gly Phe Arg Glu Gly Thr Cys Gly Ala Gln  
 50 55 60

Thr Gln Arg Ile Arg Cys Arg Val Pro Cys Asn Trp Lys Lys Glu Phe  
 65 70 75 80

Gly Ala Asp Cys Lys Tyr Lys Phe Glu Asn Trp Gly Ala Cys Asp Gly  
 85 90 95

Gly Thr Gly Thr Lys Val Arg Gln Gly Thr Leu Lys Lys Ala Arg Tyr  
 100 105 110

Asn Ala Gln Cys Gln Glu Thr Ile Arg Val Thr Lys Pro Cys Thr Pro  
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Lys Thr Lys Ala Lys Ala Lys Ala Lys Lys Gly Lys Gly Lys Asp  
 130 135 140

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<400> 18

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Ser Asp Arg Gln Gly Ile Thr Lys Ser Ala Pro Leu Arg Val Ser Gln  
35 40 45

Leu Phe Ser Arg Ser Cys Pro Arg Val Leu Pro Arg Gln Pro Ser Thr  
50 55 60

Ala Met Ala Ala Tyr Gly Gln Thr Gln Tyr Ser Ala Gly Ile Gln Gln  
65 70 75 80

Ala Thr Pro Tyr Thr Ala Tyr Pro Pro Pro Ala Gln Ala Tyr Gly Ile  
85 90 95

Pro Ser Tyr Ser Ile Lys Thr Glu Asp Ser Leu Asn His Ser Pro Gly  
100 105 110

Gln Ser Gly Phe Leu Ser Tyr Gly Ser Ser Phe Ser Thr Ser Pro Thr  
115 120 125

Gly Gln Ser Pro Tyr Thr Tyr Gln Met His Gly Thr Thr Gly Phe Tyr  
130 135 140

Gln Gly Gly Asn Gly Leu Gly Asn Ala Ala Gly Phe Gly Ser Val His  
145 150 155 160

Gln Asp Tyr Pro Ser Tyr Pro Gly Phe Pro Gln Ser Gln Tyr Pro Gln  
165 170 175

Tyr Tyr Gly Ser Ser Tyr Asn Pro Pro Tyr Val Pro Ala Ser Ser Ile  
180 185 190

Cys Pro Ser Pro Leu Ser Thr Ser Thr Tyr Val Leu Gln Glu Ala Ser  
195 200 205

His Asn Val Pro Asn Gln Ser Ser Glu Ser Leu Ala Gly Glu Tyr Asn  
210 215 220

Thr His Asn Gly Pro Ser Thr Pro Ala Lys Glu Gly Asp Thr Asp Arg  
225 230 235 240

Pro His Arg Ala Ser Asp Gly Lys Leu Arg Gly Arg Ser Lys Arg Ser  
245 250 255

Ser Asp Pro Ser Pro Ala Gly Asp Asn Glu Ile Glu Arg Val Phe Val  
260 265 270

Trp Asp Leu Asp Glu Thr Ile Ile Ile Phe His Ser Leu Leu Thr Gly  
275 280 285

Thr Phe Ala Ser Arg Tyr Gly Lys Asp Thr Thr Thr Ser Val Arg Ile  
290 295 300

Gly Leu Met Met Glu Glu Met Ile Phe Asn Leu Ala Asp Thr His Leu  
305 310 315 320

Phe Phe Asn Asp Leu Glu Asp Cys Asp Gln Ile His Val Asp Asp Val  
325 330 335

Ser Ser Asp Asp Asn Gly Gln Asp Leu Ser Thr Tyr Asn Phe Ser Ala  
340 345 350

Asp Gly Phe His Ser Ser Ala Pro Gly Ala Asn Leu Cys Leu Gly Ser  
355 360 365

Gly Val His Gly Gly Val Asp Trp Met Arg Lys Leu Ala Phe Arg Tyr  
370 375 380

Arg Arg Val Lys Glu Met Tyr Asn Thr Tyr Lys Asn Asn Val Gly Gly  
385 390 395 400

Leu Ile Gly Thr Pro Lys Arg Glu Thr Trp Leu Gln Leu Arg Ala Glu  
405 410 415

Leu Glu Ala Leu Thr Asp Leu Trp Leu Thr His Ser Leu Lys Ala Leu  
420 425 430

Asn Leu Ile Asn Ser Arg Pro Asn Cys Val Asn Val Leu Val Thr Thr  
435 440 445

Thr Gln Leu Ile Pro Ala Leu Ala Lys Val Leu Leu Tyr Gly Leu Gly  
450 455 460

Ser Val Phe Pro Ile Glu Asn Ile Tyr Ser Ala Thr Lys Thr Gly Lys  
 465 470 475 480

Glu Ser Cys Phe Glu Arg Ile Met Gln Arg Phe Gly Arg Lys Ala Val  
 485 490 495

Tyr Val Val Ile Gly Asp Gly Val Glu Glu Glu Gln Gly Ala Lys Lys  
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His Asn Met Pro Phe Trp Arg Ile Ser Cys His Ala Asp Leu Glu Ala  
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<400> 20

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Glu Pro Ser Ile Ser Phe Glu Gly Leu Cys Asn Glu Val Arg Asp Met  
35 40 45

Cys Ser Phe Asp Asn Glu Gln Leu Phe Thr Met Lys Trp Ile Asp Glu  
50 55 60

Glu Gly Asp Pro Cys Thr Val Ser Ser Gln Leu Glu Leu Glu Glu Ala  
65 70 75 80

Phe Arg Leu Tyr Glu Leu Asn Lys Asp Ser Glu Leu Leu Ile His Val  
85 90 95

Phe Pro Cys Val Pro Glu Arg Pro Gly Met Pro Cys Pro Gly Glu Asp  
100 105 110

Lys Ser Ile Tyr Arg Arg Gly Ala Arg Arg Trp Arg Lys Leu Tyr Cys  
115 120 125

Ala Asn Gly His Thr Phe Gln Ala Lys Arg Phe Asn Arg Arg Ala His  
130 135 140

Cys Ala Ile Cys Thr Asp Arg Ile Trp Gly Leu Gly Arg Gln Gly Tyr  
145 150 155 160

Lys Cys Ile Asn Cys Lys Leu Leu Val His Lys Lys Cys His Lys Leu  
165 170 175

Val Thr Ile Glu Cys Gly Arg His Ser Leu Pro Gln Glu Pro Val Met  
180 185 190

Pro Met Asp Gln Ser Ser Met His Ser Asp His Ala Gln Thr Val Ile  
195 200 205

Pro Tyr Asn Pro Ser Ser His Glu Ser Leu Asp Gln Val Gly Glu Glu  
210 215 220

Lys Glu Ala Met Asn Thr Arg Glu Ser Gly Lys Ala Ser Ser Ser Leu  
225 230 235 240

Gly Leu Gln Asp Phe Asp Leu Leu Arg Val Ile Gly Arg Gly Ser Tyr

245

250

255

Ala Lys Val Leu Leu Val Arg Leu Lys Lys Thr Asp Arg Ile Tyr Ala  
 260 265 270

Met Lys Val Val Lys Lys Glu Leu Val Asn Asp Asp Glu Asp Ile Asp  
 275 280 285

Trp Val Gln Thr Glu Lys His Val Phe Glu Gln Ala Ser Asn His Pro  
 290 295 300

Phe Leu Val Gly Leu His Ser Cys Phe Gln Thr Glu Ser Arg Leu Phe  
 305 310 315 320

Phe Val Ile Glu Tyr Val Asn Gly Gly Asp Leu Met Phe His Met Gln  
 325 330 335

Arg Gln Arg Lys Leu Pro Glu Glu His Ala Arg Phe Tyr Ser Ala Glu  
 340 345 350

Ile Ser Leu Ala Leu Asn Tyr Leu His Glu Arg Gly Ile Ile Tyr Arg  
 355 360 365

Asp Leu Lys Leu Asp Asn Val Leu Leu Asp Ser Glu Gly His Ile Lys  
 370 375 380

Leu Thr Asp Tyr Gly Met Cys Lys Glu Gly Leu Arg Pro Gly Asp Thr  
 385 390 395 400

Thr Ser Thr Phe Cys Gly Thr Pro Asn Tyr Ile Ala Pro Glu Ile Leu  
 405 410 415

Arg Gly Glu Asp Tyr Gly Phe Ser Val Asp Trp Trp Ala Leu Gly Val  
 420 425 430

Leu Met Phe Glu Met Met Ala Gly Arg Ser Pro Phe Asp Ile Val Gly  
 435 440 445

Ser Ser Asp Asn Pro Asp Gln Asn Thr Glu Asp Tyr Leu Phe Gln Val  
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Ile Leu Glu Lys Gln Ile Arg Ile Pro Arg Ser Leu Ser Val Lys Ala  
 465 470 475 480

Ala Ser Val Leu Lys Ser Phe Leu Asn Lys Asp Pro Lys Glu Arg Leu  
485 490 495

Gly Cys His Pro Gln Thr Gly Phe Ala Asp Ile Gln Gly His Pro Phe  
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Phe Arg Asn Val Asp Trp Asp Met Met Glu Gln Lys Gln Val Val Pro  
515 520 525

Pro Phe Lys Pro Asn Ile Ser Gly Glu Phe Gly Leu Asp Asn Phe Asp  
530 535 540

Ser Gln Phe Thr Asn Glu Pro Val Gln Leu Thr Pro Asp Asp Asp Asp  
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Ile Val Arg Lys Ile Asp Gln Ser Glu Phe Glu Gly Phe Glu Tyr Ile  
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<400> 22

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Cys Phe Pro Phe Tyr Phe Leu Tyr Leu Ser Arg His Asp Arg Gly Tyr  
 50 55 60

Ile Gln Met Thr Pro Leu Asn Lys Thr Lys Thr Ala Leu Gly Phe Leu  
65 70 75 80

Leu Trp Ile Val Cys Trp Ala Asp Leu Phe Tyr Ser Phe Trp Glu Arg  
85 90 95

Ser Arg Gly Ile Phe Leu Ala Pro Val Phe Leu Val Ser Pro Thr Leu  
100 105 110

Leu Gly Ile Thr Thr Leu Leu Ala Thr Phe Leu Ile Gln Leu Glu Arg  
115 120 125

Arg Lys Gly Val Gln Ser Ser Gly Ile Met Leu Thr Phe Trp Leu Val  
130 135 140

Ala Leu Val Cys Ala Leu Ala Ile Leu Arg Ser Lys Ile Met Thr Ala  
145 150 155 160

Leu Lys Glu Asp Ala Gln Val Asp Leu Phe Arg Asp Ile Thr Phe Tyr  
165 170 175

Val Tyr Phe Ser Leu Leu Leu Ile Gln Leu Val Leu Ser Cys Phe Ser  
180 185 190

Asp Arg Ser Pro Leu Phe Ser Glu Thr Ile His Asp Pro Asn Pro Cys  
195 200 205

Pro Glu Ser Ser Ala Ser Phe Leu Ser Arg Ile Thr Phe Trp Trp Ile  
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Thr Gly Leu Ile Val Arg Gly Tyr Arg Gln Pro Leu Glu Gly Ser Asp  
225 230 235 240

Leu Trp Ser Leu Asn Lys Glu Asp Thr Ser Glu Gln Val Val Pro Val  
245 250 255

Leu Val Lys Asn Trp Lys Lys Glu Cys Ala Lys Thr Arg Lys Gln Pro  
260 265 270

Val Lys Val Val Tyr Ser Ser Lys Asp Pro Ala Gln Pro Lys Glu Ser  
275 280 285

Ser Lys Val Asp Ala Asn Glu Glu Val Glu Ala Leu Ile Val Lys Ser

290

295

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Pro Gln Lys Glu Trp Asn Pro Ser Leu Phe Lys Val Leu Tyr Lys Thr  
 305 310 315 320

Phe Gly Pro Tyr Phe Leu Met Ser Phe Phe Phe Lys Ala Ile His Asp  
 325 330 335

Leu Met Met Phe Ser Gly Pro Gln Ile Leu Lys Leu Leu Ile Lys Phe  
 340 345 350

Val Asn Asp Thr Lys Ala Pro Asp Trp Gln Gly Tyr Phe Tyr Thr Val  
 355 360 365

Leu Leu Phe Val Thr Ala Cys Leu Gln Thr Leu Val Leu His Gln Tyr  
 370 375 380

Phe His Ile Cys Phe Val Ser Gly Met Arg Ile Lys Thr Ala Val Ile  
 385 390 395 400

Gly Ala Val Tyr Arg Lys Ala Leu Val Ile Thr Asn Ser Ala Arg Lys  
 405 410 415

Ser Ser Thr Val Gly Glu Ile Val Asn Leu Met Ser Val Asp Ala Gln  
 420 425 430

Arg Phe Met Asp Leu Ala Thr Tyr Ile Asn Met Ile Trp Ser Ala Pro  
 435 440 445

Leu Gln Val Ile Leu Ala Leu Tyr Leu Leu Trp Leu Asn Leu Gly Pro  
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Ser Val Leu Ala Gly Val Ala Val Met Val Leu Met Val Pro Val Asn  
 465 470 475 480

Ala Val Met Ala Met Lys Thr Lys Thr Tyr Gln Val Ala His Met Lys  
 485 490 495

Ser Lys Asp Asn Arg Ile Lys Leu Met Asn Glu Ile Leu Asn Gly Ile  
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Lys Val Leu Lys Leu Tyr Ala Trp Glu Leu Ala Phe Lys Asp Lys Val  
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Leu Ala Ile Arg Gln Glu Glu Leu Lys Val Leu Lys Lys Ser Ala Tyr  
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Leu Ser Ala Val Gly Thr Phe Thr Trp Val Cys Thr Pro Phe Leu Val  
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Ala Leu Cys Thr Phe Ala Val Tyr Val Thr Ile Asp Glu Asn Asn Ile  
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Leu Asp Ala Gln Thr Ala Phe Val Ser Leu Ala Leu Phe Asn Ile Leu  
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Arg Phe Pro Leu Asn Ile Leu Pro Met Val Ile Ser Ser Ile Val Gln  
595 600 605

Ala Ser Val Ser Leu Lys Arg Leu Arg Ile Phe Leu Ser His Glu Glu  
610 615 620

Leu Glu Pro Asp Ser Ile Glu Arg Arg Pro Val Lys Asp Gly Gly Gly  
625 630 635 640

Thr Asn Ser Ile Thr Val Arg Asn Ala Thr Phe Thr Trp Ala Arg Ser  
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Asp Pro Pro Thr Leu Asn Gly Ile Thr Phe Ser Ile Pro Glu Gly Ala  
660 665 670

Leu Val Ala Val Val Gly Gln Val Gly Cys Gly Lys Ser Ser Leu Leu  
675 680 685

Ser Ala Leu Leu Ala Glu Met Asp Lys Val Glu Gly His Val Ala Ile  
690 695 700

Lys Gly Ser Val Ala Tyr Val Pro Gln Gln Ala Trp Ile Gln Asn Asp  
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Ser Leu Arg Glu Asn Ile Leu Phe Gly Cys Gln Leu Glu Glu Pro Tyr  
725 730 735

Tyr Arg Ser Val Ile Gln Ala Cys Ala Leu Leu Pro Asp Leu Glu Ile  
740 745 750

Leu Pro Ser Gly Asp Arg Thr Glu Ile Gly Glu Lys Gly Val Asn Leu  
755 760 765

Ser Gly Gly Gln Lys Gln Arg Val Ser Leu Ala Arg Ala Val Tyr Ser  
770 775 780

Asn Ala Asp Ile Tyr Leu Phe Asp Asp Pro Leu Ser Ala Val Asp Ala  
785 790 795 800

His Val Gly Lys His Ile Phe Glu Asn Val Ile Gly Pro Lys Gly Met  
805 810 815

Leu Lys Asn Lys Thr Arg Ile Leu Val Thr His Ser Met Ser Tyr Leu  
820 825 830

Pro Gln Val Asp Val Ile Ile Val Met Ser Gly Gly Lys Ile Ser Glu  
835 840 845

Met Gly Ser Tyr Gln Glu Leu Leu Ala Arg Asp Gly Ala Phe Ala Glu  
850 855 860

Phe Leu Arg Thr Tyr Ala Ser Thr Glu Gln Glu Gln Asp Ala Glu Glu  
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Asn Gly Val Thr Gly Val Ser Gly Pro Gly Lys Glu Ala Lys Gln Met  
885 890 895

Glu Asn Gly Met Leu Val Thr Asp Ser Ala Gly Lys Gln Leu Gln Arg  
900 905 910

Gln Leu Ser Ser Ser Ser Tyr Ser Gly Asp Ile Ser Arg His His  
915 920 925

Asn Ser Thr Ala Glu Leu Gln Lys Ala Glu Ala Lys Lys Glu Glu Thr  
930 935 940

Trp Lys Leu Met Glu Ala Asp Lys Ala Gln Thr Gly Gln Val Lys Leu  
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Ser Val Tyr Trp Asp Tyr Met Lys Ala Ile Gly Leu Phe Ile Ser Phe  
965 970 975

Leu Ser Ile Phe Leu Phe Met Cys Asn His Val Ser Ala Leu Ala Ser  
980 985 990

Asn Tyr Trp Leu Ser Leu Trp Thr Asp Asp Pro Ile Val Asn Gly Thr  
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Gln Glu His Thr Lys Val Arg Leu Ser Val Tyr Gly Ala Leu Gly  
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Ile Gly Gly Ile Leu Ala Ser Arg Cys Leu His Val Asp Leu Leu  
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His Ser Ile Leu Arg Ser Pro Met Ser Phe Phe Glu Arg Thr Pro  
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Ser Gly Asn Leu Val Asn Arg Phe Ser Lys Glu Leu Asp Thr Val  
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Asp Ser Met Ile Pro Glu Val Ile Lys Met Phe Met Gly Ser Leu  
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Phe Asn Val Ile Gly Ala Cys Ile Val Ile Leu Leu Ala Thr Pro  
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Ile Ala Ala Ile Ile Ile Pro Pro Leu Gly Leu Ile Tyr Phe Phe  
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Val Gln Arg Phe Tyr Val Ala Ser Ser Arg Gln Leu Lys Arg Leu  
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Glu Ser Val Ser Arg Ser Pro Val Tyr Ser His Phe Asn Glu Thr  
1145 1150 1155

Leu Leu Gly Val Ser Val Ile Arg Ala Phe Glu Glu Gln Glu Arg  
1160 1165 1170

Phe Ile His Gln Ser Asp Leu Lys Val Asp Glu Asn Gln Lys Ala  
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Tyr Tyr Pro Ser Ile Val Ala Asn Arg Trp Leu Ala Val Arg Leu

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Val Ile Ser Arg His Ser Leu Ser Ala Gly Leu Val Gly Leu Ser		
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Val Ser Tyr Ser Leu Gln Val Thr Thr Tyr Leu Asn Trp Leu Val		
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Arg Met Ser Ser Glu Met Glu Thr Asn Ile Val Ala Val Glu Arg		
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Leu Lys Glu Tyr Ser Glu Thr Glu Lys Glu Ala Pro Trp Gln Ile		
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Gln Glu Thr Ala Pro Pro Ser Ser Trp Pro Gln Val Gly Arg Val		
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Glu Phe Arg Asn Tyr Cys Leu Arg Tyr Arg Glu Asp Leu Asp Phe		
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Val Leu Arg His Ile Asn Val Thr Ile Asn Gly Gly Glu Lys Val		
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Gly Ile Val Gly Arg Thr Gly Ala Gly Lys Ser Ser Leu Thr Leu		
1325	1330	1335
Gly Leu Phe Arg Ile Asn Glu Ser Ala Glu Gly Glu Ile Ile Ile		
1340	1345	1350
Asp Gly Ile Asn Ile Ala Lys Ile Gly Leu His Asp Leu Arg Phe		
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Lys Ile Thr Ile Ile Pro Gln Asp Pro Val Leu Phe Ser Gly Ser		
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Leu Arg Met Asn Leu Asp Pro Phe Ser Gln Tyr Ser Asp Glu Glu		
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Val Trp Thr Ser Leu Glu Leu Ala His Leu Lys Asp Phe Val Ser		
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Ala Leu Pro Asp Lys Leu Asp His Glu Cys Ala Glu Gly Gly Glu  
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Asn Leu Ser Val Gly Gln Arg Gln Leu Val Cys Leu Ala Arg Ala  
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Leu Leu Arg Lys Thr Lys Ile Leu Val Leu Asp Glu Ala Thr Ala  
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Ala Val Asp Leu Glu Thr Asp Asp Leu Ile Gln Ser Thr Ile Arg  
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Thr Gln Phe Glu Asp Cys Thr Val Leu Thr Ile Ala His Arg Leu  
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Asn Thr Ile Met Asp Tyr Thr Arg Val Ile Val Leu Asp Lys Gly  
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Ala His Pro Thr Leu Gln Ala Asp Asp Asp Ser Leu Leu Asp Gln Asp  
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Arg Leu Thr Ile Ala Ala Val Leu Tyr Leu Leu Phe Met Ile Gly Glu  
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Leu His Met Leu Thr Asp Leu Ser Ala Ile Ile Leu Thr Leu Leu Ala  
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Leu Trp Leu Ser Ser Lys Ser Pro Thr Lys Arg Phe Thr Phe Gly Phe  
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His Arg Leu Glu Val Leu Ser Ala Met Ile Ser Val Leu Leu Val Tyr  
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Ile Leu Met Gly Phe Leu Leu Tyr Glu Ala Val Gln Arg Thr Ile His  
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Met Asn Tyr Glu Ile Asn Gly Asp Ile Met Leu Ile Thr Ala Ala Val  
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Gly Val Ala Val Asn Val Ile Met Gly Phe Leu Leu Asn Gln Ser Gly  
225 230 235 240

His Arg His Ser His Ser His Ser Leu Pro Ser Asn Ser Pro Thr Arg  
245 250 255

Gly Ser Gly Cys Glu Arg Asn His Gly Gln Asp Ser Leu Ala Val Arg  
260 265 270

Ala Ala Phe Val His Ala Leu Gly Asp Leu Val Gln Ser Val Gly Val  
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Leu Ile Ala Ala Tyr Ile Ile Arg Phe Lys Pro Glu Tyr Lys Ile Ala  
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Asp Pro Ile Cys Thr Tyr Val Phe Ser Leu Leu Val Ala Phe Thr Thr  
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Phe Arg Ile Ile Trp Asp Thr Val Val Ile Ile Leu Glu Gly Val Pro  
 325 330 335

Ser His Leu Asn Val Asp Tyr Ile Lys Glu Ala Leu Met Lys Ile Glu  
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Asp Val Tyr Ser Val Glu Asp Leu Asn Ile Trp Ser Leu Thr Ser Gly  
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Lys Ser Thr Ala Ile Val His Ile Gln Leu Ile Pro Gly Ser Ser Ser  
 370 375 380

Lys Trp Glu Glu Val Gln Ser Lys Ala Asn His Leu Leu Leu Asn Thr  
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Pro Gln Lys Tyr Phe Ser Thr Leu Gln Pro Gly Leu Glu Glu Leu Asn  
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Glu Ala Val Arg Pro Leu Gln Asp Tyr Gly Ile Ser Val Ala Lys Val  
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Asn Cys Val Lys Glu Glu Ile Ser Arg Tyr Cys Gly Lys Glu Lys Asp  
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Leu Met Lys Ala Tyr Leu Phe Lys Gly Asn Ile Leu Leu Arg Glu Phe  
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Pro Thr Asp Thr Leu Phe Asp Val Asn Ala Ile Val Ala His Val Leu  
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Phe Ala Leu Leu Phe Ser Glu Val Lys Tyr Ile Thr Asn Leu Glu Asp  
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Leu Gln Asn Ile Glu Asn Ala Leu Lys Gly Lys Ala Asn Ile Ile Phe

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Ala Gly Phe Val Tyr Gly Thr Thr Tyr Gln Phe Val Leu Thr Thr Glu		
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Ile Ala Leu Leu Glu Ser Ile Gly Ser Glu Asp Val Glu Tyr Ala His		
	180	185 190
Leu Tyr Phe Phe His Cys Lys Leu Val Leu Asp Leu Thr Gln Gln Cys		
	195	200 205
Arg Arg Thr Leu Met Glu Gln Pro Leu Thr Thr Leu Asn Ile His Leu		
	210	215 220
Phe Ile Lys Thr Met Lys Ala Pro Leu Leu Thr Glu Val Ala Glu Asp		
225	230	235 240
Pro Gln Gln Val Ser Thr Val His Leu Gln Leu Gly Leu Pro Leu Val		
	245	250 255
Phe Ile Val Ser Gln Gln Ala Thr Tyr Glu Ala Asp Arg Arg Thr Ala		
	260	265 270
Glu Trp Val Ala Trp Arg Leu Leu Gly Lys Ala Gly Val Leu Leu Leu		
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Leu Arg Asp Ser Leu Glu Val Asn Ile Pro Gln Asp Ala Asn Val Val		
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Phe Lys Arg Ala Glu Glu Gly Val Pro Val Glu Phe Leu Val Leu His		
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Asp Val Asp Leu Ile Ile Ser His Val Glu Asn Asn Met His Ile Glu		
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Glu Ile Gln Glu Asp Glu Asp Asn Asp Met Glu Gly Pro Asp Ile Asp		
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Val Gln Asp Asp Glu Val Ala Glu Thr Val Phe Arg Asp Arg Lys Arg		
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Lys Leu Pro Leu Glu Leu Thr Val Glu Leu Thr Glu Glu Thr Phe Asn  
370 375 380

Ala Thr Val Met Ala Ser Asp Ser Ile Val Leu Phe Tyr Ala Gly Trp  
385 390 395 400

Gln Ala Val Ser Met Ala Phe Leu Gln Ser Tyr Ile Asp Val Ala Val  
405 410 415

Lys Leu Lys Gly Thr Ser Thr Met Leu Leu Thr Arg Ile Asn Cys Ala  
420 425 430

Asp Trp Ser Asp Val Cys Thr Lys Gln Asn Val Thr Glu Phe Pro Ile  
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Ile Lys Met Tyr Lys Lys Gly Glu Asn Pro Val Ser Tyr Ala Gly Met  
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Tyr Pro Val Asn Ile Thr Ser Ile Gln Glu Ala Glu Glu Tyr Leu Ser  
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Gly Glu Leu Tyr Lys Asp Leu Ile Leu Tyr Ser Ser Val Ser Val Leu  
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Gly Leu Phe Ser Pro Thr Met Lys Thr Ala Lys Glu Asp Phe Ser Glu  
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Ala Gly Asn Tyr Leu Lys Gly Tyr Val Ile Thr Gly Ile Tyr Ser Glu  
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Glu Asp Val Leu Leu Leu Ser Thr Lys Tyr Ala Ala Ser Leu Pro Ala  
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Leu Leu Leu Ala Arg His Thr Glu Gly Lys Ile Glu Ser Ile Pro Leu  
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Ala Ser Thr His Ala Gln Asp Ile Val Gln Ile Ile Thr Asp Ala Leu  
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Leu Glu Met Phe Pro Glu Ile Thr Val Glu Asn Leu Pro Ser Tyr Phe  
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Arg Leu Gln Lys Pro Leu Leu Ile Leu Phe Ser Asp Gly Thr Val Asn  
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Pro Gln Tyr Lys Lys Ala Ile Leu Thr Leu Val Lys Gln Lys Tyr Leu  
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Asp Ser Phe Thr Pro Cys Trp Leu Asn Leu Lys Asn Thr Pro Val Gly  
645 650 655

Arg Gly Ile Leu Arg Ala Tyr Phe Asp Pro Leu Pro Pro Leu Pro Leu  
660 665 670

Leu Val Leu Val Asn Leu His Ser Gly Gly Gln Val Phe Ala Phe Pro  
675 680 685

Ser Asp Gln Ala Ile Ile Glu Glu Asn Leu Val Leu Trp Leu Lys Lys  
690 695 700

Leu Glu Ala Gly Leu Glu Asn His Ile Thr Ile Leu Pro Ala Gln Glu  
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Trp Lys Pro Pro Leu Pro Ala Tyr Asp Phe Leu Ser Met Ile Asp Ala  
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Ala Thr Ser Gln Arg Gly Thr Arg Lys Val Pro Lys Cys Met Lys Glu  
740 745 750

Thr Asp Val Gln Glu Asn Asp Lys Glu Gln His Glu Asp Lys Ser Ala  
755 760 765

Val Arg Lys Glu Pro Ile Glu Thr Leu Arg Ile Lys His Trp Asn Arg  
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Gly Glu Thr Ser Met Leu Lys Arg Pro Val Leu Leu His Leu His Gln  
35 40 45

Thr Ala His Ala Asp Glu Phe Asp Cys Pro Ser Glu Leu Gln His Thr  
50 55 60

Gln Glu Leu Phe Pro Gln Trp His Leu Pro Ile Lys Ile Ala Ala Ile  
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Ile Ala Ser Leu Thr Phe Leu Tyr Thr Leu Leu Arg Glu Val Ile His  
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Pro Leu Ala Thr Ser His Gln Gln Tyr Phe Tyr Lys Ile Pro Ile Leu  
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Val Ile Asn Lys Val Leu Pro Met Val Ser Ile Thr Leu Leu Ala Leu  
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Val Tyr Leu Pro Gly Val Ile Ala Ala Ile Val Gln Leu His Asn Gly  
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Thr Lys Tyr Lys Lys Phe Pro His Trp Leu Asp Lys Trp Met Leu Thr  
145 150 155 160

Arg Lys Gln Phe Gly Leu Leu Ser Phe Phe Phe Ala Val Leu His Ala  
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Ile Tyr Ser Leu Ser Tyr Pro Met Arg Arg Ser Tyr Arg Tyr Lys Leu  
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Leu Asn Trp Ala Tyr Gln Gln Val Gln Gln Asn Lys Glu Asp Ala Trp  
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Ile Glu His Asp Val Trp Arg Met Glu Ile Tyr Val Ser Leu Gly Ile  
210 215 220

Val Gly Leu Ala Ile Leu Ala Leu Leu Ala Val Thr Ser Ile Pro Ser  
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Val Ser Asp Ser Leu Thr Trp Arg Glu Phe His Tyr Ile Gln Ser Lys  
245 250 255

Leu Gly Ile Val Ser Leu Leu Leu Gly Thr Ile His Ala Leu Ile Phe  
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Ala Trp Asn Lys Trp Ile Asp Ile Lys Gln Phe Val Trp Tyr Thr Pro  
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Pro Thr Phe Met Ile Ala Val Phe Leu Pro Ile Val Val Leu Ile Phe  
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Lys Ser Ile Leu Phe Leu Pro Cys Leu Arg Lys Lys Ile Leu Lys Ile  
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<400> 30

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Met Tyr Val Val Ala Met Phe Gly Asn Cys Ile Val Val Phe Ile Val  
 35 40 45

Arg Thr Glu Arg Ser Leu His Ala Pro Met Tyr Leu Phe Leu Cys Met  
 50 55 60

Leu Ala Ala Ile Asp Leu Ala Leu Ser Thr Ser Thr Met Pro Lys Ile  
 65 70 75 80

Leu Ala Leu Phe Trp Phe Asp Ser Arg Glu Ile Ser Phe Glu Ala Cys  
 85 90 95

Leu Thr Gln Met Phe Phe Ile His Ala Leu Ser Ala Ile Glu Ser Thr  
 100 105 110

Ile Leu Leu Ala Met Ala Phe Asp Arg Tyr Val Ala Ile Cys His Pro  
 115 120 125

Leu Arg His Ala Ala Val Leu Asn Asn Thr Val Thr Ala Gln Ile Gly  
 130 135 140

Ile Val Ala Val Val Arg Gly Ser Leu Phe Phe Phe Pro Leu Pro Leu  
 145 150 155 160

Leu Ile Lys Arg Leu Ala Phe Cys His Ser Asn Val Leu Ser His Ser  
 165 170 175

Tyr Cys Val His Gln Asp Val Met Lys Leu Ala Tyr Ala Asp Thr Leu  
180 185 190

Pro Asn Val Val Tyr Gly Leu Thr Ala Ile Leu Leu Val Met Gly Val  
195 200 205

Asp Val Met Phe Ile Ser Leu Ser Tyr Phe Leu Ile Ile Arg Thr Val  
210 215 220

Leu Gln Leu Pro Ser Lys Ser Glu Arg Ala Lys Ala Phe Gly Thr Cys  
225 230 235 240

Val Ser His Ile Gly Val Val Leu Ala Phe Tyr Val Pro Leu Ile Gly  
245 250 255

Leu Ser Val Val His Arg Phe Gly Asn Ser Leu His Pro Ile Val Arg  
260 265 270

Val Val Met Gly Asp Ile Tyr Leu Leu Leu Pro Pro Val Ile Asn Pro  
275 280 285

Ile Ile Tyr Gly Ala Lys Thr Lys Gln Ile Arg Thr Arg Val Leu Ala  
290 295 300

Met Phe Lys Ile Ser Cys Asp Lys Asp Leu Gln Ala Val Gly Gly Lys  
305 310 315 320

<210> 31  
<211> 1020  
<212> DNA  
<213> human organism

<400> 31  
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ggacgacgcc cagaatggga gctgactgat atggtggtgt gggtgactgg agcctcgagt 180  
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gccagaagag tgcattgagct ggaaagggtg aaaagaagat gcctagagaa tggcaattta 300  
aaagaaaaag atatacttgt ttgcccctt gacctgaccg aactgggttc ccatgaagcg 360  
gctaccaaag ctgttctcca ggagtttggg agaatcgaca ttctggtcaa caatggtgga 420

atgtcccagc gttctctgtg catggatacc agcttggatg tctacagaaa gctaatagag 480  
 cttaactact tagggacggt gtccttgaca aaatgtgttc tgcctcacat gatcgagagg 540  
 aagcaaggaa agattgttac tgtgaatagc atcctgggta tcatatctgt acctctttcc 600  
 attggatact gtgctagcaa gcatgctctc cgggggtttt ttaatggcct tcgaacagaa 660  
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 attgtggaga attccctagc tggagaagtc acaaagacta taggcaataa tggagaccag 780  
 tcccacaaga tgacaaccag tcgttgtgtg cggtgatgt taatcagcat ggccaatgat 840  
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 atgccaacct gggcctggtg gataaccaac aagatgggga agaaaaggat tgagaacttt 960  
 aagagtgggtg tggatgcaga ctcttcttat tttaaaatct ttaagacaaa acatgactga 1020

<210> 32  
 <211> 339  
 <212> PRT  
 <213> human organism

<400> 32

Met Asn Trp Glu Leu Leu Trp Leu Leu Val Leu Cys Ala Leu Leu  
 1 5 10 15

Leu Leu Leu Val Gln Leu Leu Arg Phe Leu Arg Ala Asp Gly Asp Leu  
 20 25 30

Thr Leu Leu Trp Ala Glu Trp Gln Gly Arg Arg Pro Glu Trp Glu Leu  
 35 40 45

Thr Asp Met Val Val Trp Val Thr Gly Ala Ser Ser Gly Ile Gly Glu  
 50 55 60

Glu Leu Ala Tyr Gln Leu Ser Lys Leu Gly Val Ser Leu Val Leu Ser  
 65 70 75 80

Ala Arg Arg Val His Glu Leu Glu Arg Val Lys Arg Arg Cys Leu Glu  
 85 90 95

Asn Gly Asn Leu Lys Glu Lys Asp Ile Leu Val Leu Pro Leu Asp Leu  
 100 105 110

Thr Asp Thr Gly Ser His Glu Ala Ala Thr Lys Ala Val Leu Gln Glu

115	120	125
Phe Gly Arg Ile Asp Ile Leu Val Asn Asn Gly Gly Met Ser Gln Arg		
130	135	140
Ser Leu Cys Met Asp Thr Ser Leu Asp Val Tyr Arg Lys Leu Ile Glu		
145	150	155
Leu Asn Tyr Leu Gly Thr Val Ser Leu Thr Lys Cys Val Leu Pro His		
	165	170
Met Ile Glu Arg Lys Gln Gly Lys Ile Val Thr Val Asn Ser Ile Leu		
	180	185
Gly Ile Ile Ser Val Pro Leu Ser Ile Gly Tyr Cys Ala Ser Lys His		
	195	200
Ala Leu Arg Gly Phe Phe Asn Gly Leu Arg Thr Glu Leu Ala Thr Tyr		
	210	215
Pro Gly Ile Ile Val Ser Asn Ile Cys Pro Gly Pro Val Gln Ser Asn		
225	230	235
Ile Val Glu Asn Ser Leu Ala Gly Glu Val Thr Lys Thr Ile Gly Asn		
	245	250
Asn Gly Asp Gln Ser His Lys Met Thr Thr Ser Arg Cys Val Arg Leu		
	260	265
Met Leu Ile Ser Met Ala Asn Asp Leu Lys Glu Val Trp Ile Ser Glu		
	275	280
Gln Pro Phe Leu Leu Val Thr Tyr Leu Trp Gln Tyr Met Pro Thr Trp		
	290	295
Ala Trp Trp Ile Thr Asn Lys Met Gly Lys Lys Arg Ile Glu Asn Phe		
305	310	315
Lys Ser Gly Val Asp Ala Asp Ser Ser Tyr Phe Lys Ile Phe Lys Thr		
	325	330
Lys His Asp		

<210> 33  
 <211> 1186  
 <212> DNA  
 <213> human organism

<400> 33  
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 catgaggatt ctgcagttaa tcctgcttgc tctggcaaca gggcttgtag ggggagagac 180  
 caggatcatc aaggggttcg agtgcaagcc tcaactcccag ccctggcagg cagccctgtt 240  
 cgagaagacg cggctactct gtggggcgac gctcatcgcc ccagatggc tcctgacagc 300  
 agcccactgc ctcaagcccc gctacatagt tcacctgggg cagcacaacc tccagaagga 360  
 ggagggtgtg gagcagacct ggacagccac tgagtcttcc cccacccccg gttcaacaa 420  
 cagcctcccc aacaaagacc accgcaatga catcatgctg gtgaagatgg catcgccagt 480  
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 cttgcgatgc gccaacatca ccatcattga gcaccagaag tgtgagaacg cctacccccg 660  
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 gggtgactcc gggggccctc tgggtctgtaa ccagtctctt caaggcatta tctcctgggg 780  
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 caagaccctc tacgaacatt ctttgggcct cctggactac aggagatgct gtcacttaat 1020  
 aatcaacctg gggttcgaaa tcagtgagac ctggattcaa attctgcctt gaaatattgt 1080  
 gactctggga atgacaacac ctggtttgtt ctctgttgta tcccagccc caaagacagc 1140  
 tcctggccat atatcaaggt ttcaataaat atttgctaaa tgagtg 1186

<210> 34  
 <211> 250  
 <212> PRT  
 <213> human organism

<400> 34

Met Arg Ile Leu Gln Leu Ile Leu Leu Ala Leu Ala Thr Gly Leu Val

1	5	10	15
Gly Gly Glu Thr Arg Ile Ile Lys Gly Phe Glu Cys Lys Pro His Ser	20	25	30
Gln Pro Trp Gln Ala Ala Leu Phe Glu Lys Thr Arg Leu Leu Cys Gly	35	40	45
Ala Thr Leu Ile Ala Pro Arg Trp Leu Leu Thr Ala Ala His Cys Leu	50	55	60
Lys Pro Arg Tyr Ile Val His Leu Gly Gln His Asn Leu Gln Lys Glu	65	70	75
Glu Gly Cys Glu Gln Thr Arg Thr Ala Thr Glu Ser Phe Pro His Pro	85	90	95
Gly Phe Asn Asn Ser Leu Pro Asn Lys Asp His Arg Asn Asp Ile Met	100	105	110
Leu Val Lys Met Ala Ser Pro Val Ser Ile Thr Trp Ala Val Arg Pro	115	120	125
Leu Thr Leu Ser Ser Arg Cys Val Thr Ala Gly Thr Ser Cys Leu Ile	130	135	140
Ser Gly Trp Gly Ser Thr Ser Ser Pro Gln Leu Arg Leu Pro His Thr	145	150	155
Leu Arg Cys Ala Asn Ile Thr Ile Ile Glu His Gln Lys Cys Glu Asn	165	170	175
Ala Tyr Pro Gly Asn Ile Thr Asp Thr Met Val Cys Ala Ser Val Gln	180	185	190
Glu Gly Gly Lys Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val	195	200	205
Cys Asn Gln Ser Leu Gln Gly Ile Ile Ser Trp Gly Gln Asp Pro Cys	210	215	220
Ala Ile Thr Arg Lys Pro Gly Val Tyr Thr Lys Val Cys Lys Tyr Val	225	230	235
			240





Asp Trp Ile Gln Glu Thr Met Lys Asn Asn  
245 250

<210> 35  
<211> 1233  
<212> DNA  
<213> human organism

<400> 35  
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ctctctagga gagcccaact ctgtcttggc gtcagtatcc tggctctgat cctcgctcgtg 180  
gtgctcgcgg tggctgtccc gaggtggcgc cagacgtgga gcggtccggg caccaccaag 240  
cgctttcccg agaccgtcct ggcgcgatgc gtcaagtaca ctgaaattca tcctgagatg 300  
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ccttgcaaca ttactgaaga agactatcag ccactaatga agttgggaac tcagaccgta 420  
ccttgcaaca agattcttct ttggagcaga ataaaagatc tggcccatca gttcacacag 480  
gtccagcggg acatgttcac cctggaggac acgctgctag gctaccttgc tgatgacctc 540  
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aaggactgca gcaacaaccc tgtttcagta ttctggaaaa cggtttcccg caggtttgca 660  
gaagctgcct gtgatgtggt ccatgtgatg ctcaatggat cccgcagtaa aatctttgac 720  
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ctagaggcct ggggtgataca tgggtggaaga gaagattcca gagacttatg ccaggatccc 840  
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<210> 36  
<211> 300

<212> PRT  
<213> human organism

<400> 36

Met Ala Asn Cys Glu Phe Ser Pro Val Ser Gly Asp Lys Pro Cys Cys  
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Arg Leu Ser Arg Arg Ala Gln Leu Cys Leu Gly Val Ser Ile Leu Val  
20 25 30

Leu Ile Leu Val Val Val Leu Ala Val Val Val Pro Arg Trp Arg Gln  
35 40 45

Thr Trp Ser Gly Pro Gly Thr Thr Lys Arg Phe Pro Glu Thr Val Leu  
50 55 60

Ala Arg Cys Val Lys Tyr Thr Glu Ile His Pro Glu Met Arg His Val  
65 70 75 80

Asp Cys Gln Ser Val Trp Asp Ala Phe Lys Gly Ala Phe Ile Ser Lys  
85 90 95

His Pro Cys Asn Ile Thr Glu Glu Asp Tyr Gln Pro Leu Met Lys Leu  
100 105 110

Gly Thr Gln Thr Val Pro Cys Asn Lys Ile Leu Leu Trp Ser Arg Ile  
115 120 125

Lys Asp Leu Ala His Gln Phe Thr Gln Val Gln Arg Asp Met Phe Thr  
130 135 140

Leu Glu Asp Thr Leu Leu Gly Tyr Leu Ala Asp Asp Leu Thr Trp Cys  
145 150 155 160

Gly Glu Phe Asn Thr Ser Lys Ile Asn Tyr Gln Ser Cys Pro Asp Trp  
165 170 175

Arg Lys Asp Cys Ser Asn Asn Pro Val Ser Val Phe Trp Lys Thr Val  
180 185 190

Ser Arg Arg Phe Ala Glu Ala Ala Cys Asp Val Val His Val Met Leu  
195 200 205

Asn Gly Ser Arg Ser Lys Ile Phe Asp Lys Asn Ser Thr Phe Gly Ser  
 210 215 220

Val Glu Val His Asn Leu Gln Pro Glu Lys Val Gln Thr Leu Glu Ala  
 225 230 235 240

Trp Val Ile His Gly Gly Arg Glu Asp Ser Arg Asp Leu Cys Gln Asp  
 245 250 255

Pro Thr Ile Lys Glu Leu Glu Ser Ile Ile Ser Lys Arg Asn Ile Gln  
 260 265 270

Phe Ser Cys Lys Asn Ile Tyr Arg Pro Asp Lys Phe Leu Gln Cys Val  
 275 280 285

Lys Asn Pro Glu Asp Ser Ser Cys Thr Ser Glu Ile  
 290 295 300

<210> 37  
 <211> 3315  
 <212> DNA  
 <213> human organism

<400> 37  
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ctaagattga tccacatttt tactgtaagc agaaacttag gacccaagat tataatgctg 2580  
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 tctgtctgct gtttcaaaaa tgaagacaat gagactctgg catgggaggg tgtcatgaag 3180  
 gaaaactacc ttgtcaagat caacacaaaa gccaacgaca cctcagagga aatgaggcat 3240  
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 aataaaatca aatga 3315

<210> 38  
 <211> 1104  
 <212> PRT  
 <213> human organism

<400> 38

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Thr Leu Asp Ser Thr Arg Thr Leu Tyr Ser Ser Ala Ser Arg Ser Thr  
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Asp Leu Ser Tyr Ser Glu Ser Asp Leu Val Asn Phe Ile Gln Ala Asn  
 35 40 45

Phe Lys Lys Arg Glu Cys Val Phe Phe Thr Lys Asp Ser Lys Ala Thr  
 50 55 60

Glu Asn Val Cys Lys Cys Gly Tyr Ala Gln Ser Gln His Met Glu Gly  
 65 70 75 80

Thr Gln Ile Asn Gln Ser Glu Lys Trp Asn Tyr Lys Lys His Thr Lys

85

90

95

Glu Phe Pro Thr Asp Ala Phe Gly Asp Ile Gln Phe Glu Thr Leu Gly  
 100 105 110

Lys Lys Gly Lys Tyr Ile Arg Leu Ser Cys Asp Thr Asp Ala Glu Ile  
 115 120 125

Leu Tyr Glu Leu Leu Thr Gln His Trp His Leu Lys Thr Pro Asn Leu  
 130 135 140

Val Ile Ser Val Thr Gly Gly Ala Lys Asn Phe Ala Leu Lys Pro Arg  
 145 150 155 160

Met Arg Lys Ile Phe Ser Arg Leu Ile Tyr Ile Ala Gln Ser Lys Gly  
 165 170 175

Ala Trp Ile Leu Thr Gly Gly Thr His Tyr Gly Leu Met Lys Tyr Ile  
 180 185 190

Gly Glu Val Val Arg Asp Asn Thr Ile Ser Arg Ser Ser Glu Glu Asn  
 195 200 205

Ile Val Ala Ile Gly Ile Ala Ala Trp Gly Met Val Ser Asn Arg Asp  
 210 215 220

Thr Leu Ile Arg Asn Cys Asp Ala Glu Gly Tyr Phe Leu Ala Gln Tyr  
 225 230 235 240

Leu Met Asp Asp Phe Thr Arg Asp Pro Leu Tyr Ile Leu Asp Asn Asn  
 245 250 255

His Thr His Leu Leu Leu Val Asp Asn Gly Cys His Gly His Pro Thr  
 260 265 270

Val Glu Ala Lys Leu Arg Asn Gln Leu Glu Lys Tyr Ile Ser Glu Arg  
 275 280 285

Thr Ile Gln Asp Ser Asn Tyr Gly Gly Lys Ile Pro Ile Val Cys Phe  
 290 295 300

Ala Gln Gly Gly Gly Lys Glu Thr Leu Lys Ala Ile Asn Thr Ser Ile  
 305 310 315 320

Lys Asn Lys Ile Pro Cys Val Val Val Glu Gly Ser Gly Gln Ile Ala  
325 330 335

Asp Val Ile Ala Ser Leu Val Glu Val Glu Asp Ala Leu Thr Ser Ser  
340 345 350

Ala Val Lys Glu Lys Leu Val Arg Phe Leu Pro Arg Thr Val Ser Arg  
355 360 365

Leu Pro Glu Glu Glu Thr Glu Ser Trp Ile Lys Trp Leu Lys Glu Ile  
370 375 380

Leu Glu Cys Ser His Leu Leu Thr Val Ile Lys Met Glu Glu Ala Gly  
385 390 395 400

Asp Glu Ile Val Ser Asn Ala Ile Ser Tyr Ala Leu Tyr Lys Ala Phe  
405 410 415

Ser Thr Ser Glu Gln Asp Lys Asp Asn Trp Asn Gly Gln Leu Lys Leu  
420 425 430

Leu Leu Glu Trp Asn Gln Leu Asp Leu Ala Asn Asp Glu Ile Phe Thr  
435 440 445

Asn Asp Arg Arg Trp Glu Ser Ala Asp Leu Gln Glu Val Met Phe Thr  
450 455 460

Ala Leu Ile Lys Asp Arg Pro Lys Phe Val Arg Leu Phe Leu Glu Asn  
465 470 475 480

Gly Leu Asn Leu Arg Lys Phe Leu Thr His Asp Val Leu Thr Glu Leu  
485 490 495

Phe Ser Asn His Phe Ser Thr Leu Val Tyr Arg Asn Leu Gln Ile Ala  
500 505 510

Lys Asn Ser Tyr Asn Asp Ala Leu Leu Thr Phe Val Trp Lys Leu Val  
515 520 525

Ala Asn Phe Arg Arg Gly Phe Arg Lys Glu Asp Arg Asn Gly Arg Asp  
530 535 540

Glu Met Asp Ile Glu Leu His Asp Val Ser Pro Ile Thr Arg His Pro  
545 550 555 560

Leu Gln Ala Leu Phe Ile Trp Ala Ile Leu Gln Asn Lys Lys Glu Leu  
565 570 575

Ser Lys Val Ile Trp Glu Gln Thr Arg Gly Cys Thr Leu Ala Ala Leu  
580 585 590

Gly Ala Ser Lys Leu Leu Lys Thr Leu Ala Lys Val Lys Asn Asp Ile  
595 600 605

Asn Ala Ala Gly Glu Ser Glu Glu Leu Ala Asn Glu Tyr Glu Thr Arg  
610 615 620

Ala Val Glu Leu Phe Thr Glu Cys Tyr Ser Ser Asp Glu Asp Leu Ala  
625 630 635 640

Glu Gln Leu Leu Val Tyr Ser Cys Glu Ala Trp Gly Gly Ser Asn Cys  
645 650 655

Leu Glu Leu Ala Val Glu Ala Thr Asp Gln His Phe Ile Ala Gln Pro  
660 665 670

Gly Val Gln Asn Phe Leu Ser Lys Gln Trp Tyr Gly Glu Ile Ser Arg  
675 680 685

Asp Thr Lys Asn Trp Lys Ile Ile Leu Cys Leu Phe Ile Ile Pro Leu  
690 695 700

Val Gly Cys Gly Phe Val Ser Phe Arg Lys Lys Pro Val Asp Lys His  
705 710 715 720

Lys Lys Leu Leu Trp Tyr Tyr Val Ala Phe Phe Thr Ser Pro Phe Val  
725 730 735

Val Phe Ser Trp Asn Val Val Phe Tyr Ile Ala Phe Leu Leu Phe  
740 745 750

Ala Tyr Val Leu Leu Met Asp Phe His Ser Val Pro His Pro Pro Glu  
755 760 765



Leu Val Leu Tyr Ser Leu Val Phe Val Leu Phe Cys Asp Glu Val Arg  
770 775 780

Gln Trp Tyr Val Asn Gly Val Asn Tyr Phe Thr Asp Leu Trp Asn Val  
785 790 795 800

Met Asp Thr Leu Gly Leu Phe Tyr Phe Ile Ala Gly Ile Val Phe Arg  
805 810 815

Leu His Ser Ser Asn Lys Ser Ser Leu Tyr Ser Gly Arg Val Ile Phe  
820 825 830

Cys Leu Asp Tyr Ile Ile Phe Thr Leu Arg Leu Ile His Ile Phe Thr  
835 840 845

Val Ser Arg Asn Leu Gly Pro Lys Ile Ile Met Leu Gln Arg Met Leu  
850 855 860

Ile Asp Val Phe Phe Phe Leu Phe Leu Phe Ala Val Trp Met Val Ala  
865 870 875 880

Phe Gly Val Ala Arg Gln Gly Ile Leu Arg Gln Asn Glu Gln Arg Trp  
885 890 895

Arg Trp Ile Phe Arg Ser Val Ile Tyr Glu Pro Tyr Leu Ala Met Phe  
900 905 910

Gly Gln Val Pro Ser Asp Val Asp Gly Thr Thr Tyr Asp Phe Ala His  
915 920 925

Cys Thr Phe Thr Gly Asn Glu Ser Lys Pro Leu Cys Val Glu Leu Asp  
930 935 940

Glu His Asn Leu Pro Arg Phe Pro Glu Trp Ile Thr Ile Pro Leu Val  
945 950 955 960

Cys Ile Tyr Met Leu Ser Thr Asn Ile Leu Leu Val Asn Leu Leu Val  
965 970 975

Ala Met Phe Gly Tyr Thr Val Gly Thr Val Gln Glu Asn Asn Asp Gln  
980 985 990

Val Trp Lys Phe Gln Arg Tyr Phe Leu Val Gln Glu Tyr Cys Ser Arg

995

1000

1005

Leu Asn Ile Pro Phe Pro Phe Ile Val Phe Ala Tyr Phe Tyr Met  
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Val Val Lys Lys Cys Phe Lys Cys Cys Cys Lys Glu Lys Asn Met  
 1025 1030 1035

Glu Ser Ser Val Cys Cys Phe Lys Asn Glu Asp Asn Glu Thr Leu  
 1040 1045 1050

Ala Trp Glu Gly Val Met Lys Glu Asn Tyr Leu Val Lys Ile Asn  
 1055 1060 1065

Thr Lys Ala Asn Asp Thr Ser Glu Glu Met Arg His Arg Phe Arg  
 1070 1075 1080

Gln Leu Asp Thr Lys Leu Asn Asp Leu Lys Gly Leu Leu Lys Glu  
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Ile Ala Asn Lys Ile Lys  
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 <211> 558  
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 cgcgcgcgaga ttgccatttg cggcatgagc acctggagca aaaggtctct gagccaggaa 180  
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 gattccaatc ttagctttga agaatttaag aaacttattc gcaataggca aagtgaagcc 420  
 gcagacagca atccttcaga attaaaatac ttaggcttgg atactcattc tcaaaaaaag 480  
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 cttgctaaat attgctga 558

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<211> 185  
<212> PRT  
<213> human organism

<400> 40

Met Pro Arg Leu Phe Leu Phe His Leu Leu Glu Phe Cys Leu Leu Leu  
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Asn Gln Phe Ser Arg Ala Val Ala Ala Lys Trp Lys Asp Asp Val Ile  
20 25 30

Lys Leu Cys Gly Arg Glu Leu Val Arg Ala Gln Ile Ala Ile Cys Gly  
35 40 45

Met Ser Thr Trp Ser Lys Arg Ser Leu Ser Gln Glu Asp Ala Pro Gln  
50 55 60

Thr Pro Arg Pro Val Ala Glu Ile Val Pro Ser Phe Ile Asn Lys Asp  
65 70 75 80

Thr Glu Thr Ile Ile Ile Met Leu Glu Phe Ile Ala Asn Leu Pro Pro  
85 90 95

Glu Leu Lys Ala Ala Leu Ser Glu Arg Gln Pro Ser Leu Pro Glu Leu  
100 105 110

Gln Gln Tyr Val Pro Ala Leu Lys Asp Ser Asn Leu Ser Phe Glu Glu  
115 120 125

Phe Lys Lys Leu Ile Arg Asn Arg Gln Ser Glu Ala Ala Asp Ser Asn  
130 135 140

Pro Ser Glu Leu Lys Tyr Leu Gly Leu Asp Thr His Ser Gln Lys Lys  
145 150 155 160

Arg Arg Pro Tyr Val Ala Leu Phe Glu Lys Cys Cys Leu Ile Gly Cys  
165 170 175

Thr Lys Arg Ser Leu Ala Lys Tyr Cys  
180 185

<210> 41

<211> 3978  
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<210> 42  
 <211> 1325  
 <212> PRT  
 <213> human organism

<400> 42

Met Leu Pro Val Tyr Gln Glu Val Lys Pro Asn Pro Leu Gln Asp Ala  
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Asn Leu Cys Ser Arg Val Phe Phe Trp Trp Leu Asn Pro Leu Phe Lys  
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Ile Gly His Lys Arg Arg Leu Glu Glu Asp Asp Met Tyr Ser Val Leu  
 35 40 45

Pro Glu Asp Arg Ser Gln His Leu Gly Glu Glu Leu Gln Gly Phe Trp  
 50 55 60

Asp Lys Glu Val Leu Arg Ala Glu Asn Asp Ala Gln Lys Pro Ser Leu  
 65 70 75 80

Thr Arg Ala Ile Ile Lys Cys Tyr Trp Lys Ser Tyr Leu Val Leu Gly  
 85 90 95

Ile Phe Thr Leu Ile Glu Glu Ser Ala Lys Val Ile Gln Pro Ile Phe  
100 105 110

Leu Gly Lys Ile Ile Asn Tyr Phe Glu Asn Tyr Asp Pro Met Asp Ser  
115 120 125

Val Ala Leu Asn Thr Ala Tyr Ala Tyr Ala Thr Val Leu Thr Phe Cys  
130 135 140

Thr Leu Ile Leu Ala Ile Leu His His Leu Tyr Phe Tyr His Val Gln  
145 150 155 160

Cys Ala Gly Met Arg Leu Arg Val Ala Met Cys His Met Ile Tyr Arg  
165 170 175

Lys Ala Leu Arg Leu Ser Asn Met Ala Met Gly Lys Thr Thr Thr Gly  
180 185 190

Gln Ile Val Asn Leu Leu Ser Asn Asp Val Asn Lys Phe Asp Gln Val  
195 200 205

Thr Val Phe Leu His Phe Leu Trp Ala Gly Pro Leu Gln Ala Ile Ala  
210 215 220

Val Thr Ala Leu Leu Trp Met Glu Ile Gly Ile Ser Cys Leu Ala Gly  
225 230 235 240

Met Ala Val Leu Ile Ile Leu Leu Pro Leu Gln Ser Cys Phe Gly Lys  
245 250 255

Leu Phe Ser Ser Leu Arg Ser Lys Thr Ala Thr Phe Thr Asp Ala Arg  
260 265 270

Ile Arg Thr Met Asn Glu Val Ile Thr Gly Ile Arg Ile Ile Lys Met  
275 280 285

Tyr Ala Trp Glu Lys Ser Phe Ser Asn Leu Ile Thr Asn Leu Arg Lys  
290 295 300

Lys Glu Ile Ser Lys Ile Leu Arg Ser Ser Cys Leu Arg Gly Met Asn  
305 310 315 320

Leu Ala Ser Phe Phe Ser Ala Ser Lys Ile Ile Val Phe Val Thr Phe

325

330

335

Thr Thr Tyr Val Leu Leu Gly Ser Val Ile Thr Ala Ser Arg Val Phe  
 340 345 350

Val Ala Val Thr Leu Tyr Gly Ala Val Arg Leu Thr Val Thr Leu Phe  
 355 360 365

Phe Pro Ser Ala Ile Glu Arg Val Ser Glu Ala Ile Val Ser Ile Arg  
 370 375 380

Arg Ile Gln Thr Phe Leu Leu Leu Asp Glu Ile Ser Gln Arg Asn Arg  
 385 390 395 400

Gln Leu Pro Ser Asp Gly Lys Lys Met Val His Val Gln Asp Phe Thr  
 405 410 415

Ala Phe Trp Asp Lys Ala Ser Glu Thr Pro Thr Leu Gln Gly Leu Ser  
 420 425 430

Phe Thr Val Arg Pro Gly Glu Leu Leu Ala Val Val Gly Pro Val Gly  
 435 440 445

Ala Gly Lys Ser Ser Leu Leu Ser Ala Val Leu Gly Glu Leu Ala Pro  
 450 455 460

Ser His Gly Leu Val Ser Val His Gly Arg Ile Ala Tyr Val Ser Gln  
 465 470 475 480

Gln Pro Trp Val Phe Ser Gly Thr Leu Arg Ser Asn Ile Leu Phe Gly  
 485 490 495

Lys Lys Tyr Glu Lys Glu Arg Tyr Glu Lys Val Ile Lys Ala Cys Ala  
 500 505 510

Leu Lys Lys Asp Leu Gln Leu Leu Glu Asp Gly Asp Leu Thr Val Ile  
 515 520 525

Gly Asp Arg Gly Thr Thr Leu Ser Gly Gly Gln Lys Ala Arg Val Asn  
 530 535 540

Leu Ala Arg Ala Val Tyr Gln Asp Ala Asp Ile Tyr Leu Leu Asp Asp  
 545 550 555 560



Pro Leu Ser Ala Val Asp Ala Glu Val Ser Arg His Leu Phe Glu Leu  
565 570 575

Cys Ile Cys Gln Ile Leu His Glu Lys Ile Thr Ile Leu Val Thr His  
580 585 590

Gln Leu Gln Tyr Leu Lys Ala Ala Ser Gln Ile Leu Ile Leu Lys Asp  
595 600 605

Gly Lys Met Val Gln Lys Gly Thr Tyr Thr Glu Phe Leu Lys Ser Gly  
610 615 620

Ile Asp Phe Gly Ser Leu Leu Lys Lys Asp Asn Glu Glu Ser Glu Gln  
625 630 635 640

Pro Pro Val Pro Gly Thr Pro Thr Leu Arg Asn Arg Thr Phe Ser Glu  
645 650 655

Ser Ser Val Trp Ser Gln Gln Ser Ser Arg Pro Ser Leu Lys Asp Gly  
660 665 670

Ala Leu Glu Ser Gln Asp Thr Glu Asn Val Pro Val Thr Leu Ser Glu  
675 680 685

Glu Asn Arg Ser Glu Gly Lys Val Gly Phe Gln Ala Tyr Lys Asn Tyr  
690 695 700

Phe Arg Ala Gly Ala His Trp Ile Val Phe Ile Phe Leu Ile Leu Leu  
705 710 715 720

Asn Thr Ala Ala Gln Val Ala Tyr Val Leu Gln Asp Trp Trp Leu Ser  
725 730 735

Tyr Trp Ala Asn Lys Gln Ser Met Leu Asn Val Thr Val Asn Gly Gly  
740 745 750

Gly Asn Val Thr Glu Lys Leu Asp Leu Asn Trp Tyr Leu Gly Ile Tyr  
755 760 765

Ser Gly Leu Thr Val Ala Thr Val Leu Phe Gly Ile Ala Arg Ser Leu  
770 775 780

Leu Val Phe Tyr Val Leu Val Asn Ser Ser Gln Thr Leu His Asn Lys  
785 790 795 800

Met Phe Glu Ser Ile Leu Lys Ala Pro Val Leu Phe Phe Asp Arg Asn  
805 810 815

Pro Ile Gly Arg Ile Leu Asn Arg Phe Ser Lys Asp Ile Gly His Leu  
820 825 830

Asp Asp Leu Leu Pro Leu Thr Phe Leu Asp Phe Ile Gln Thr Leu Leu  
835 840 845

Gln Val Val Gly Val Val Ser Val Ala Val Ala Val Ile Pro Trp Ile  
850 855 860

Ala Ile Pro Leu Val Pro Leu Gly Ile Ile Phe Ile Phe Leu Arg Arg  
865 870 875 880

Tyr Phe Leu Glu Thr Ser Arg Asp Val Lys Arg Leu Glu Ser Thr Thr  
885 890 895

Arg Ser Pro Val Phe Ser His Leu Ser Ser Ser Leu Gln Gly Leu Trp  
900 905 910

Thr Ile Arg Ala Tyr Lys Ala Glu Glu Arg Cys Gln Glu Leu Phe Asp  
915 920 925

Ala His Gln Asp Leu His Ser Glu Ala Trp Phe Leu Phe Leu Thr Thr  
930 935 940

Ser Arg Trp Phe Ala Val Arg Leu Asp Ala Ile Cys Ala Met Phe Val  
945 950 955 960

Ile Ile Val Ala Phe Gly Ser Leu Ile Leu Ala Lys Thr Leu Asp Ala  
965 970 975

Gly Gln Val Gly Leu Ala Leu Ser Tyr Ala Leu Thr Leu Met Gly Met  
980 985 990

Phe Gln Trp Cys Val Arg Gln Ser Ala Glu Val Glu Asn Met Met Ile  
995 1000 1005

Ser Val	Glu Arg Val Ile Glu	Tyr Thr Asp Leu Glu	Lys Glu Ala
1010	1015	1020	
Pro Trp	Glu Tyr Gln Lys Arg	Pro Pro Pro Ala Trp	Pro His Glu
1025	1030	1035	
Gly Val	Ile Ile Phe Asp Asn	Val Asn Phe Met Tyr	Ser Pro Gly
1040	1045	1050	
Gly Pro	Leu Val Leu Lys His	Leu Thr Ala Leu Ile	Lys Ser Gln
1055	1060	1065	
Glu Lys	Val Gly Ile Val Gly	Arg Thr Gly Ala Gly	Lys Ser Ser
1070	1075	1080	
Leu Ile	Ser Ala Leu Phe Arg	Leu Ser Glu Pro Glu	Gly Lys Ile
1085	1090	1095	
Trp Ile	Asp Lys Ile Leu Thr	Thr Glu Ile Gly Leu	His Asp Leu
1100	1105	1110	
Arg Lys	Lys Met Ser Ile Ile	Pro Gln Glu Pro Val	Leu Phe Thr
1115	1120	1125	
Gly Thr	Met Arg Lys Asn Leu	Asp Pro Phe Asn Glu	His Thr Asp
1130	1135	1140	
Glu Glu	Leu Trp Asn Ala Leu	Gln Glu Val Gln Leu	Lys Glu Thr
1145	1150	1155	
Ile Glu	Asp Leu Pro Gly Lys	Met Asp Thr Glu Leu	Ala Glu Ser
1160	1165	1170	
Gly Ser	Asn Phe Ser Val Gly	Gln Arg Gln Leu Val	Cys Leu Ala
1175	1180	1185	
Arg Ala	Ile Leu Arg Lys Asn	Gln Ile Leu Ile Ile	Asp Glu Ala
1190	1195	1200	
Thr Ala	Asn Val Asp Pro Arg	Thr Asp Glu Leu Ile	Gln Lys Lys
1205	1210	1215	
Ile Arg	Glu Lys Phe Ala His	Cys Thr Val Leu Thr	Ile Ala His

1220		1225		1230
Arg Leu Asn Thr Ile Ile Asp Ser Asp Lys Ile Met Val Leu Asp				
1235		1240		1245
Ser Gly Arg Leu Lys Glu Tyr Asp Glu Pro Tyr Val Leu Leu Gln				
1250		1255		1260
Asn Lys Glu Ser Leu Phe Tyr Lys Met Val Gln Gln Leu Gly Lys				
1265		1270		1275
Ala Glu Ala Ala Ala Leu Thr Glu Thr Ala Lys Gln Val Tyr Phe				
1280		1285		1290
Lys Arg Asn Tyr Pro His Ile Gly His Thr Asp His Met Val Thr				
1295		1300		1305
Asn Thr Ser Asn Gly Gln Pro Ser Thr Leu Thr Ile Phe Glu Thr				
1310		1315		1320
Ala Leu				
1325				

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 <211> 1140  
 <212> DNA  
 <213> human organism

<400> 43	
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aaaagacaaa acaaggaaag tggagagact ggggttagagt acctgtacct agactctaca	240
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<210> 44  
<211> 357  
<212> PRT  
<213> human organism

<400> 44

Met Met Ala Arg Leu Leu Arg Thr Ser Phe Ala Leu Leu Phe Leu Gly  
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Leu Phe Gly Val Leu Gly Ala Ala Thr Ile Ser Cys Arg Asn Glu Glu  
20 25 30

Gly Lys Ala Val Asp Trp Phe Thr Phe Tyr Lys Leu Pro Lys Arg Gln  
35 40 45

Asn Lys Glu Ser Gly Glu Thr Gly Leu Glu Tyr Leu Tyr Leu Asp Ser  
50 55 60

Thr Thr Arg Ser Trp Arg Lys Ser Glu Gln Leu Met Asn Asp Thr Lys  
65 70 75 80

Ser Val Leu Gly Arg Thr Leu Gln Gln Leu Tyr Glu Ala Tyr Ala Ser  
85 90 95

Lys Ser Asn Asn Thr Ala Tyr Leu Ile Tyr Asn Asp Gly Val Pro Lys  
100 105 110

Pro Val Asn Tyr Ser Arg Lys Tyr Gly His Thr Lys Gly Leu Leu Leu  
115 120 125

Trp Asn Arg Val Gln Gly Phe Trp Leu Ile His Ser Ile Pro Gln Phe  
130 135 140

Pro Pro Ile Pro Glu Glu Gly Tyr Asp Tyr Pro Pro Thr Gly Arg Arg  
145 150 155 160

Asn Gly Gln Ser Gly Ile Cys Ile Thr Phe Lys Tyr Asn Gln Tyr Glu  
165 170 175

Ala Ile Asp Ser Gln Leu Leu Val Cys Asn Pro Asn Val Tyr Ser Cys  
180 185 190

Ser Ile Pro Ala Thr Phe His Gln Glu Leu Ile His Met Pro Gln Leu  
195 200 205

Cys Thr Arg Ala Ser Ser Ser Glu Ile Pro Gly Arg Leu Leu Thr Thr  
210 215 220

Leu Gln Ser Ala Gln Gly Gln Lys Phe Leu His Phe Ala Lys Ser Asp  
225 230 235 240

Ser Phe Leu Asp Asp Ile Phe Ala Ala Trp Met Ala Gln Arg Leu Lys  
245 250 255

Thr His Leu Leu Thr Glu Thr Trp Gln Arg Lys Arg Gln Glu Leu Pro  
260 265 270

Ser Asn Cys Ser Leu Pro Tyr His Val Tyr Asn Ile Lys Ala Ile Lys  
275 280 285

Leu Ser Arg His Ser Tyr Phe Ser Ser Tyr Gln Asp His Ala Lys Trp  
290 295 300

Cys Ile Ser Gln Lys Gly Thr Lys Asn Arg Trp Thr Cys Ile Gly Asp  
305 310 315 320

Leu Asn Arg Ser Pro His Gln Ala Phe Arg Ser Gly Gly Phe Ile Cys  
325 330 335

Thr Gln Asn Trp Gln Ile Tyr Gln Ala Phe Gln Gly Leu Val Leu Tyr  
340 345 350

Tyr Glu Ser Cys Lys  
355

<210> 45  
<211> 2243  
<212> DNA  
<213> human organism

<400> 45  
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Trp Lys Pro Val Phe Ile Thr Ala Phe Leu Gly Ile Ala Ser Phe Ala  
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Cys Lys Asn Thr Met Ala Tyr Ile Gly Phe Val Glu Glu Lys Gly Ala  
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Arg Asn Asn Val Phe His Leu Glu Asp Gly Glu Pro Tyr Cys Glu Thr  
 515 520 525

Asp Tyr Tyr Ala Leu Phe Gly Thr Ile Cys His Gly Cys Glu Phe Pro  
 530 535 540

Ile Glu Ala Gly Asp Met Phe Leu Glu Ala Leu Gly Tyr Thr Trp His  
 545 550 555 560

Asp Thr Cys Phe Val Cys Ser Val Cys Cys Glu Ser Leu Glu Gly Gln  
 565 570 575

Thr Phe Phe Ser Lys Lys Asp Lys Pro Leu Cys Lys Lys His Ala His  
 580 585 590



Ser Val Asn Phe  
595

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<400> 54

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Trp Lys Arg Arg Thr Gly Leu Leu Leu Tyr Glu Asn Tyr Gly Gln Ser  
35 40 45

Glu Thr Gly Leu Ile Cys Ala Thr Tyr Trp Gly Met Lys Ile Lys Pro  
50 55 60

Gly Phe Met Gly Lys Ala Thr Pro Pro Tyr Asp Val Gln Phe His Met  
65 70 75 80

Glu Ala Ser Val Glu Asn Cys Ile Ile Val Ser Met Asn Thr Ala Asp  
85 90 95

Pro Gly Ser Gln Gly Ile Thr His Ser Leu Leu Leu Gln Val Ile Asp  
100 105 110

Asp Lys Gly Ser Ile Leu Pro Pro Asn Thr Glu Gly Asn Ile Gly Ile  
115 120 125

Arg Ile Lys Pro Val Arg Pro Val Ser Leu Phe Met Cys Tyr Glu Gly  
130 135 140

Asp Pro Glu Lys Thr Ala Lys Val Glu Cys Gly Asp Phe Tyr Asn Thr  
145 150 155 160

Gly Asp Arg Gly Lys Met Asp Glu Glu Gly Tyr Ile Cys Phe Leu Gly  
165 170 175

Arg Ser Asp Asp Ile Ile Asn Ala Ser Gly Tyr Arg Ile Gly Pro Ala  
180 185 190

Glu Val Glu Ser Ala Leu Val Glu His Pro Ala Val Ala Glu Ser Ala  
195 200 205

Val Val Gly Ser Pro Asp Pro Ile Arg Gly Glu Val Val Lys Ala Phe  
210 215 220

Ile Val Leu Thr Pro Gln Phe Leu Ser His Asp Lys Asp Gln Leu Thr  
 225 230 235 240

Lys Glu Leu Gln Gln His Val Lys Ser Val Thr Ala Pro Tyr Lys Tyr  
 245 250 255

Pro Arg Lys Val Glu Phe Val Ser Glu Leu Pro Lys Thr Ile Thr Gly  
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Lys Ile Glu Arg Lys Glu Leu Arg Lys Lys Glu Thr Gly Gln Met  
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 <212> PRT  
 <213> human organism

<400> 56

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Lys Ser Glu Glu Leu Arg Asn Met Asp Gly Leu Gly Asn Val Glu Lys  
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Gly His

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<212> DNA  
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 <213> human organism

<400> 58

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Thr Thr Pro Val His Asp Cys Gln Asp Leu Leu Glu Thr Thr Lys Thr  
 35 40 45

Gly Gln Pro Asp Leu Gln Asp Val Pro Leu Glu Lys Ala Asp Ala Thr  
 50 55 60

Val Phe Thr Asp Gly Ser Ser Phe Leu Glu Gln Gly Glu Arg Lys Ala  
 65 70 75 80

Val Ser Phe Pro Gln Pro Asp Leu Pro Asp Asn Pro Thr Tyr Ser Thr  
 85 90 95

Glu Glu Glu Lys Leu Ala Ser Asp Val Gly Ala Asn Lys Asn Gln Glu  
 100 105 110

Gly Arg Val Phe Ala Asn Thr Thr Trp Arg Ala Gly Thr Ser Lys Glu  
115 120 125

Val Ser Phe Ala Val Asp Leu Cys Val Leu Phe Pro Glu Pro Ala Arg  
130 135 140

Thr His Glu Glu Gln His Asn Leu Pro Val Ile Gly Ala Gly Ser Val  
145 150 155 160

Asp Leu Ala Ala Gly Phe Gly His Ser Gly Ser Gln Thr Gly Cys Gly  
165 170 175

Ser Ser Lys Gly Ala Glu Lys Gly Leu Gln Asn Val Asp Phe Tyr Leu  
180 185 190

Cys Pro Gly Asn His Pro Asp Ala Ser Cys Arg Asp Thr Tyr Gln Phe  
195 200 205

Phe Cys Pro Asp Trp Thr Cys Val Thr Leu Ala Thr Tyr Ser Gly Gly  
210 215 220

Ser Thr Arg Ser Ser Thr Leu Ser Ile Ser Arg Val Pro His Pro Lys  
225 230 235 240

Leu Cys Thr Arg Lys Asn Cys Asn Pro Leu Thr Ile Thr Val His Asp  
245 250 255

Pro Asn Ala Ala Gln Trp Tyr Tyr Gly Met Ser Trp Gly Leu Arg Leu  
260 265 270

Tyr Ile Pro Gly Phe Asp Val Gly Thr Met Phe Thr Ile Gln Lys Lys  
275 280 285

Ile Leu Val Ser Trp Ser Ser Pro Lys Pro Ile Gly Pro Leu Thr Asp  
290 295 300

Leu Gly Asp Pro Ile Phe Gln Lys His Pro Asp Lys Val Asp Leu Thr  
305 310 315 320

Val Pro Leu Pro Phe Leu Val Pro Arg Pro Gln Leu Gln Gln Gln His  
325 330 335

Leu Gln Pro Ser Leu Met Ser Ile Leu Gly Gly Val His His Leu Leu  
340 345 350

Asn Leu Thr Gln Pro Lys Leu Ala Gln Asp Cys Trp Leu Cys Leu Lys  
355 360 365

Ala Lys Pro Pro Tyr Tyr Val Gly Leu Gly Val Glu Ala Thr Leu Lys  
370 375 380

Arg Gly Pro Leu Ser Cys His Thr Arg Pro Arg Ala Leu Thr Ile Gly  
385 390 395 400

Asp Val Ser Gly Asn Ala Ser Cys Leu Ile Ser Thr Gly Tyr Asn Leu  
405 410 415

Ser Ala Ser Pro Phe Gln Ala Thr Cys Asn Gln Ser Leu Leu Thr Ser  
420 425 430

Ile Ser Thr Ser Val Ser Tyr Gln Ala Pro Asn Asn Thr Trp Leu Ala  
435 440 445

Cys Thr Ser Gly Leu Thr Arg Cys Ile Asn Gly Thr Glu Pro Gly Pro  
450 455 460

Leu Leu Cys Val Leu Val His Val Leu Pro Gln Val Tyr Val Tyr Ser  
465 470 475 480

Gly Pro Glu Gly Arg Gln Leu Ile Ala Pro Pro Glu Leu His Pro Arg  
485 490 495

Leu His Gln Ala Val Pro Leu Leu Val Pro Leu Leu Ala Gly Leu Ser  
500 505 510

Ile Ala Gly Ser Ala Ala Ile Gly Thr Ala Ala Leu Val Gln Gly Glu  
515 520 525

Thr Gly Leu Ile Ser Leu Ser Gln Gln Val Asp Ala Asp Phe Ser Asn  
530 535 540

Leu Gln Ser Ala Ile Asp Ile Leu His Ser Gln Val Glu Ser Leu Ala  
545 550 555 560

Glu Val Val Leu Gln Asn Cys Arg Cys Leu Asp Leu Leu Phe Leu Ser

565

570

575

Gln Gly Gly Leu Cys Ala Ala Leu Gly Glu Ser Cys Cys Phe Tyr Ala  
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Asn Gln Ser Gly Val Ile Lys Gly Thr Val Lys Lys Val Arg Glu Asn  
 595 600 605

Leu Asp Arg His Gln Gln Glu Arg Glu Asn Asn Ile Pro Trp Tyr Gln  
 610 615 620

Ser Met Phe Asn Trp Asn Pro Trp Leu Thr Thr Leu Ile Thr Gly Leu  
 625 630 635 640

Ala Gly Pro Leu Leu Ile Leu Leu Leu Ser Leu Ile Phe Gly Pro Cys  
 645 650 655

Ile Leu Asn Ser Phe Leu Asn Phe Ile Lys Gln Arg Ile Ala Ser Val  
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Lys Leu Thr Tyr Leu Lys Thr Gln Tyr Asp Thr Leu Val Asn Asn  
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<211> 567
<212> PRT
<213> human organism

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<400> 60

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Arg Phe Val Val Cys Asp Ser Glu Leu Ser Leu Tyr His Val Glu Ser
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Thr Val Asn Ser Glu Leu Lys Ala Gly Ser Leu Arg Leu Ser Glu Asp
          35           40           45

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Ser Ala Ala Thr Leu Leu Ser Ile Asn Ser Asp Thr Pro Tyr Met Lys
          50           55           60

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Cys Val Ala Trp Tyr Leu Asn Tyr Asp Pro Glu Cys Leu Leu Ala Val
65           70           75           80

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Gly Gln Ala Asn Gly Arg Val Val Leu Thr Ser Leu Gly Gln Asp His
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Asn Ser Lys Phe Lys Asp Leu Ile Gly Lys Glu Phe Val Pro Lys His
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Ala Arg Gln Cys Asn Thr Leu Ala Trp Asn Pro Leu Asp Ser Asn Trp  
115 120 125

Leu Ala Ala Gly Leu Asp Lys His Arg Ala Asp Phe Ser Val Leu Ile  
130 135 140

Trp Asp Ile Cys Ser Lys Tyr Thr Pro Asp Ile Val Pro Met Glu Lys  
145 150 155 160

Val Lys Leu Ser Ala Gly Glu Thr Glu Thr Thr Leu Leu Val Thr Lys  
165 170 175

Pro Leu Tyr Glu Leu Gly Gln Asn Asp Ala Cys Leu Ser Leu Cys Trp  
180 185 190

Leu Pro Arg Asp Gln Lys Leu Leu Leu Ala Gly Met His Arg Asn Leu  
195 200 205

Ala Ile Phe Asp Leu Arg Asn Thr Ser Gln Lys Met Phe Val Asn Thr  
210 215 220

Lys Ala Val Gln Gly Val Thr Val Asp Pro Tyr Phe His Asp Arg Val  
225 230 235 240

Ala Ser Phe Tyr Glu Gly Gln Val Ala Ile Trp Asp Leu Arg Lys Phe  
245 250 255

Glu Lys Pro Val Leu Thr Leu Thr Glu Gln Pro Lys Pro Leu Thr Lys  
260 265 270

Val Ala Trp Cys Pro Thr Arg Thr Gly Leu Leu Ala Thr Leu Thr Arg  
275 280 285

Asp Ser Asn Ile Ile Arg Leu Tyr Asp Met Gln His Thr Pro Thr Pro  
290 295 300

Ile Gly Asp Glu Thr Glu Pro Thr Ile Ile Glu Arg Ser Val Gln Pro  
305 310 315 320

Cys Asp Asn Tyr Ile Ala Ser Phe Ala Trp His Pro Thr Ser Gln Asn  
325 330 335

Arg Met Ile Val Val Thr Pro Asn Arg Thr Met Ser Asp Phe Thr Val  
340 345 350

Phe Glu Arg Ile Ser Leu Ala Trp Ser Pro Ile Thr Ser Leu Met Trp  
355 360 365

Ala Cys Gly Arg His Leu Tyr Glu Cys Thr Glu Glu Glu Asn Asp Asn  
370 375 380

Ser Leu Glu Lys Asp Ile Ala Thr Lys Met Arg Leu Arg Ala Leu Ser  
385 390 395 400

Arg Tyr Gly Leu Asp Thr Glu Gln Val Trp Arg Asn His Ile Leu Ala  
405 410 415

Gly Asn Glu Asp Pro Gln Leu Lys Ser Leu Trp Tyr Thr Leu His Phe  
420 425 430

Met Lys Gln Tyr Thr Glu Asp Met Asp Gln Lys Ser Pro Gly Asn Lys  
435 440 445

Gly Ser Leu Val Tyr Ala Gly Ile Lys Ser Ile Val Lys Ser Ser Leu  
450 455 460

Gly Met Val Glu Ser Ser Arg His Asn Trp Ser Gly Leu Asp Lys Gln  
465 470 475 480

Ser Asp Ile Gln Asn Leu Asn Glu Glu Arg Ile Leu Ala Leu Gln Leu  
485 490 495

Cys Gly Trp Ile Lys Lys Gly Thr Asp Val Asp Val Gly Pro Phe Leu  
500 505 510

Asn Ser Leu Val Gln Glu Gly Glu Trp Glu Arg Ala Ala Ala Val Ala  
515 520 525

Leu Phe Asn Leu Asp Ile Arg Arg Ala Ile Gln Ile Leu Asn Glu Gly  
530 535 540

Ala Ser Ser Glu Lys Gly Arg Arg Ser Glu Ser Gln Cys Gly Ser Asn  
545 550 555 560

Gly Phe Ile Gly Leu Tyr Gly  
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<223> n is a, c, g, or t

<220>  
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<222> (217)..(217)  
<223> Xaa can be any naturally occurring amino acid

<400> 62

Met Gly Ala Arg Gly Ala Pro Ser Arg Arg Arg Gln Ala Gly Arg Arg  
1 5 10 15

Leu Arg Tyr Leu Pro Thr Gly Ser Phe Pro Phe Leu Leu Leu Leu Leu  
20 25 30

Leu Leu Cys Ile Gln Leu Gly Gly Gly Gln Lys Lys Lys Glu Asn Leu  
35 40 45

Leu Ala Glu Lys Val Glu Gln Leu Met Glu Trp Ser Ser Arg Arg Ser  
50 55 60

Ile Phe Arg Met Asn Gly Asp Lys Phe Arg Lys Phe Ile Lys Ala Pro  
65 70 75 80

Pro Arg Asn Tyr Ser Met Ile Val Met Phe Thr Ala Leu Gln Pro Gln  
85 90 95

Arg Gln Cys Ser Val Cys Arg Gln Ala Asn Glu Glu Tyr Gln Ile Leu  
100 105 110

Ala Asn Ser Trp Arg Tyr Ser Ser Ala Phe Cys Asn Lys Leu Phe Phe  
115 120 125

Ser Met Val Asp Tyr Asp Glu Gly Thr Asp Val Phe Gln Gln Leu Asn  
130 135 140

Met Asn Ser Ala Pro Thr Phe Xaa His Xaa Pro Pro Lys Gly Arg Pro  
145 150 155 160

Lys Arg Ala Asp Thr Phe Asp Leu Gln Arg Ile Gly Phe Ala Ala Glu  
165 170 175

Gln Leu Ala Lys Trp Ile Ala Asp Arg Thr Asp Val His Ile Arg Val  
180 185 190

Phe Arg Pro Pro Asn Tyr Ser Gly Thr Ile Ala Leu Ala Leu Leu Val  
195 200 205

Ser Leu Val Gly Gly Leu Leu Tyr Xaa Arg Arg Asn Asn Leu Glu Phe  
210 215 220

Ile Tyr Asn Lys Thr Gly Trp Ala Met Val Ser Leu Cys Ile Val Phe  
225 230 235 240

Ala Met Thr Ser Gly Gln Met Trp Asn His Ile Arg Gly Pro Pro Tyr  
245 250 255

Ala His Lys Asn Pro His Asn Gly Gln Val Ser Tyr Ile His Gly Ser  
260 265 270

Ser Gln Ala Gln Phe Val Ala Glu Ser His Ile Ile Leu Val Leu Asn  
275 280 285

Ala Ala Ile Thr Met Gly Met Val Leu Leu Asn Glu Ala Ala Thr Ser  
290 295 300

Lys Gly Asp Val Gly Lys Arg Arg Ile Ile Cys Leu Val Gly Leu Gly  
305 310 315 320

Leu Val Val Phe Phe Phe Ser Phe Leu Leu Ser Ile Phe Arg Ser Lys  
325 330 335

Tyr His Gly Tyr Pro Tyr Ser Asp Leu Asp Phe Glu  
340 345

<210> 63  
<211> 1130  
<212> DNA

<213> human organism

<400> 63

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cagggcgagc cgctgcattt ctgctgccta gacttcagcc tggaggagct gcagggcgag      180
ccgggctggc ggctgaaccg taagcccatt gagtccacgc tggtggcctg cttcatgacc      240
ctggtcacgc tgggtgtggag cgtggccgcc ctcatctggc cggtgcccac catcgccggc      300
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gccgcagtgc ccgcagggac caccgcagcc gccgcccgcg ccgcccgtgc cgccgccgcc      420
gcggccgtca cttcgggggt ggcgaccaag tgaccgcctc cgctcctccc tgtgtccgtc      480
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aagcaagggt tgtgctgcgc ttccagttcc gaaaagcaga tgtttaagcc cttggactga      660
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catgggaagg atttaacacc gatatatgtt taccgctgaa aatgaacttt atgaaccttt     1020
tccaagttga tctatccagt gacgtggcct ggtgggcgtt tcttcttgta cttatgtggg     1080
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<210> 64

<211> 150

<212> PRT

<213> human organism

<400> 64

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Gly Arg Arg Thr Gly Arg Leu Arg Pro Ala Ala Ala Pro Ser Ala Ala
1           5           10           15
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Ala Ala Thr Ala Gly Ala Pro Thr Ala Leu Pro Ala Tyr Pro Ala Ala
20           25           30
```



Glu Pro Pro Gly Pro Leu Trp Leu Gln Gly Glu Pro Leu His Phe Cys  
35 40 45

Cys Leu Asp Phe Ser Leu Glu Leu Gln Gly Glu Pro Gly Trp Arg  
50 55 60

Leu Asn Arg Lys Pro Ile Glu Ser Thr Leu Val Ala Cys Phe Met Thr  
65 70 75 80

Leu Val Ile Val Val Trp Ser Val Ala Ala Leu Ile Trp Pro Val Pro  
85 90 95

Ile Ile Ala Gly Phe Leu Pro Asn Gly Met Glu Gln Arg Arg Thr Thr  
100 105 110

Ala Ser Thr Thr Ala Ala Thr Pro Ala Ala Val Pro Ala Gly Thr Thr  
115 120 125

Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Val Thr  
130 135 140

Ser Gly Val Ala Thr Lys  
145 150

<210> 65  
<211> 1521  
<212> DNA  
<213> human organism

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<223> n is a, c, g, or t

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cgcgtaggag agacactgcc ctgccgcgat gggggcccg ggcgctcctt cacgccgtag 180  
gcaagcgggg cggcggctgc ggtacctgcc caccgggagc tttcccttcc ttctcctgct 240  
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aaaagtagag cagctgatgg aatggagttc cagacgctca atcttccgaa tgaatggtga 360  
taaattccga aaatttataa aggcaccacc tcgaaactat tccatgattg ttatgttcac 420

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caygcatttw cctccaaaag gcagacctaa gagagctgat acttttgacc tccaaagaat	660
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ggttttcaga ccacccaact actctggtac cattgctttg gccctgtag tgctgcttgt	780
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ggccatggtg tctctgtgta tagtctttgc tatgacttct ggccagatgt ggaaccatat	900
ccgtggacct ccatatgctc ataagaacct acacaatgga caagtgaact acattcatgg	960
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acggataatt tgcctagtgg gattgggctt ggtggtcttc ttcttcagtt ttctactttc	1140
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caataaatga caatgtaatt a	1521

<210> 66  
 <211> 348  
 <212> PRT  
 <213> human organism

<220>  
 <221> misc\_feature  
 <222> (152)..(152)  
 <223> Xaa can be any naturally occurring amino acid

<220>  
 <221> misc\_feature  
 <222> (154)..(154)  
 <223> Xaa can be any naturally occurring amino acid

<220>

<221> misc\_feature  
<222> (217)..(217)  
<223> Xaa can be any naturally occurring amino acid

<400> 66

Met Gly Ala Arg Gly Ala Pro Ser Arg Arg Arg Gln Ala Gly Arg Arg  
1 5 10 15

Leu Arg Tyr Leu Pro Thr Gly Ser Phe Pro Phe Leu Leu Leu Leu Leu  
20 25 30

Leu Leu Cys Ile Gln Leu Gly Gly Gly Gln Lys Lys Lys Glu Asn Leu  
35 40 45

Leu Ala Glu Lys Val Glu Gln Leu Met Glu Trp Ser Ser Arg Arg Ser  
50 55 60

Ile Phe Arg Met Asn Gly Asp Lys Phe Arg Lys Phe Ile Lys Ala Pro  
65 70 75 80

Pro Arg Asn Tyr Ser Met Ile Val Met Phe Thr Ala Leu Gln Pro Gln  
85 90 95

Arg Gln Cys Ser Val Cys Arg Gln Ala Asn Glu Glu Tyr Gln Ile Leu  
100 105 110

Ala Asn Ser Trp Arg Tyr Ser Ser Ala Phe Cys Asn Lys Leu Phe Phe  
115 120 125

Ser Met Val Asp Tyr Asp Glu Gly Thr Asp Val Phe Gln Gln Leu Asn  
130 135 140

Met Asn Ser Ala Pro Thr Phe Xaa His Xaa Pro Pro Lys Gly Arg Pro  
145 150 155 160

Lys Arg Ala Asp Thr Phe Asp Leu Gln Arg Ile Gly Phe Ala Ala Glu  
165 170 175

Gln Leu Ala Lys Trp Ile Ala Asp Arg Thr Asp Val His Ile Arg Val  
180 185 190

Phe Arg Pro Pro Asn Tyr Ser Gly Thr Ile Ala Leu Ala Leu Leu Val  
195 200 205

Ser Leu Val Gly Gly Leu Leu Tyr Xaa Arg Arg Asn Asn Leu Glu Phe  
 210 215 220

Ile Tyr Asn Lys Thr Gly Trp Ala Met Val Ser Leu Cys Ile Val Phe  
 225 230 235 240

Ala Met Thr Ser Gly Gln Met Trp Asn His Ile Arg Gly Pro Pro Tyr  
 245 250 255

Ala His Lys Asn Pro His Asn Gly Gln Val Ser Tyr Ile His Gly Ser  
 260 265 270

Ser Gln Ala Gln Phe Val Ala Glu Ser His Ile Ile Leu Val Leu Asn  
 275 280 285

Ala Ala Ile Thr Met Gly Met Val Leu Leu Asn Glu Ala Ala Thr Ser  
 290 295 300

Lys Gly Asp Val Gly Lys Arg Arg Ile Ile Cys Leu Val Gly Leu Gly  
 305 310 315 320

Leu Val Val Phe Phe Phe Ser Phe Leu Leu Ser Ile Phe Arg Ser Lys  
 325 330 335

Tyr His Gly Tyr Pro Tyr Ser Asp Leu Asp Phe Glu  
 340 345

<210> 67  
 <211> 2306  
 <212> DNA  
 <213> human organism

<400> 67  
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 aggttggcag gtgaccagag gaatgcttcc taccctcatt gccttcagtt ttacttgcag 180  
 ccaccttctg aaaacatatc tttaacagaa ttgaaaact tggctattga tagagttaaa 240  
 ttgttaaaat cagttgaaaa tcttggagtg agctatgtga aaggaactga acaataccag 300  
 agtaagttgg agagtgaact tcggaagctc aagttttcct acagagagaa gctagaagat 360  
 gaatatgaac cacgaagaag agatcatatt tctcatttta ttttgcggct tgcttattgc 420

cagtctgaag aacttagacg ctggttcatt caacaagaaa tggatctcct tcgattttaga	480
tttagtatttt tacccaagga taaaattcag gattttcttaa aggatagcca attgcagttt	540
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tcttttagatc agattgattt gctttctacc aaatccttcc caccttgcat gcgtcagtta	960
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gttttataac cctttttcct caatagcctg tttcctgttt ttaagatttt gcctttgttg	1680
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<210> 68  
 <211> 509  
 <212> PRT  
 <213> human organism

<400> 68

Met Glu Phe Ser Gly Arg Lys Arg Arg Lys Leu Arg Leu Ala Gly Asp  
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Gln Arg Asn Ala Ser Tyr Pro His Cys Leu Gln Phe Tyr Leu Gln Pro  
 20 25 30

Pro Ser Glu Asn Ile Ser Leu Thr Glu Phe Glu Asn Leu Ala Ile Asp  
 35 40 45

Arg Val Lys Leu Leu Lys Ser Val Glu Asn Leu Gly Val Ser Tyr Val  
 50 55 60

Lys Gly Thr Glu Gln Tyr Gln Ser Lys Leu Glu Ser Glu Leu Arg Lys  
 65 70 75 80

Leu Lys Phe Ser Tyr Arg Glu Lys Leu Glu Asp Glu Tyr Glu Pro Arg  
 85 90 95

Arg Arg Asp His Ile Ser His Phe Ile Leu Arg Leu Ala Tyr Cys Gln  
 100 105 110

Ser Glu Glu Leu Arg Arg Trp Phe Ile Gln Gln Glu Met Asp Leu Leu  
 115 120 125

Arg Phe Arg Phe Ser Ile Leu Pro Lys Asp Lys Ile Gln Asp Phe Leu  
 130 135 140

Lys Asp Ser Gln Leu Gln Phe Glu Ala Ile Ser Asp Glu Glu Lys Thr  
 145 150 155 160

Leu Arg Glu Gln Glu Ile Val Ala Ser Ser Pro Ser Leu Ser Gly Leu  
 165 170 175

Lys Leu Gly Phe Glu Ser Ile Tyr Lys Ile Pro Phe Ala Asp Ala Leu  
180 185 190

Asp Leu Phe Arg Gly Arg Lys Val Tyr Leu Glu Asp Gly Phe Ala Tyr  
195 200 205

Val Pro Leu Lys Asp Ile Val Ala Ile Ile Leu Asn Glu Phe Arg Ala  
210 215 220

Lys Leu Ser Lys Ala Leu Ala Leu Thr Ala Arg Ser Leu Pro Ala Val  
225 230 235 240

Gln Ser Asp Glu Arg Leu Gln Pro Leu Leu Asn His Leu Ser His Ser  
245 250 255

Tyr Thr Gly Gln Asp Tyr Ser Thr Gln Gly Asn Val Gly Lys Ile Ser  
260 265 270

Leu Asp Gln Ile Asp Leu Leu Ser Thr Lys Ser Phe Pro Pro Cys Met  
275 280 285

Arg Gln Leu His Lys Ala Leu Arg Glu Asn His His Leu Arg His Gly  
290 295 300

Gly Arg Met Gln Tyr Gly Leu Phe Leu Lys Gly Ile Gly Leu Thr Leu  
305 310 315 320

Glu Gln Ala Leu Gln Phe Trp Lys Gln Glu Phe Ile Lys Gly Lys Met  
325 330 335

Asp Pro Asp Lys Phe Asp Lys Gly Tyr Ser Tyr Asn Ile Arg His Ser  
340 345 350

Phe Gly Lys Glu Gly Lys Arg Thr Asp Tyr Thr Pro Phe Ser Cys Leu  
355 360 365

Lys Ile Ile Leu Ser Asn Pro Pro Ser Gln Gly Asp Tyr His Gly Cys  
370 375 380

Pro Phe Arg His Ser Asp Pro Glu Leu Leu Lys Gln Lys Leu Gln Ser  
385 390 395 400

Tyr Lys Ile Ser Pro Gly Gly Ile Ser Gln Ile Leu Asp Leu Val Lys  
405 410 415

Gly Thr His Tyr Gln Val Ala Cys Gln Lys Tyr Phe Glu Met Ile His  
420 425 430

Asn Val Asp Asp Cys Gly Phe Ser Leu Asn His Pro Asn Gln Phe Phe  
435 440 445

Cys Glu Ser Gln Arg Ile Leu Asn Gly Gly Lys Asp Ile Lys Lys Glu  
450 455 460

Pro Ile Gln Pro Glu Thr Pro Gln Pro Lys Pro Ser Val Gln Lys Thr  
465 470 475 480

Lys Asp Ala Ser Ser Ala Leu Ala Ser Leu Asn Ser Ser Leu Glu Met  
485 490 495

Asp Met Glu Gly Leu Glu Asp Tyr Phe Ser Glu Asp Ser  
500 505

<210> 69  
<211> 1901  
<212> DNA  
<213> human organism

<400> 69  
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agagaagccc tatgaatgca ctgaatgtga caaagcattc cgctggaaat cacagctcaa 240  
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tatatgcaat gaatgtggaa aaggcttcat ccaaaagggc aacctcctta ttcacgacg 420  
tactcacact ggagagaaac cctatgaatg caatgaatgt gggaaaggct tcagccagaa 480  
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gtgtggaaaa tctgtctcac acaagtcagg tctcattaac caccagagaa ttcacacagg 600  
agagaaaccc tatacatgca gtgactgtgg gaaagctttc agagataaat catgtctcaa 660



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<210> 70
<211> 127
<212> PRT
<213> human organism

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<400> 70

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Met Asp Ala Ala Cys Val Gly Arg Pro Ser Pro Lys Gly Pro Gly Ser
1           5           10          15

```

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Leu Asn Thr Arg Glu Leu Ile Gln Glu Arg Ser Pro Met Asn Ala Leu
20          25          30

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Asn Val Thr Lys His Ser Ala Gly Asn His Ser Ser Met His Ile Arg  
 35 40 45

Lys Leu Thr Gln Glu Arg Ser His Ile Tyr Ala Val Ile Val Glu Lys  
 50 55 60

Ala Ser Phe Arg Arg Glu Ile Ser Leu Tyr Ile Ser Glu Phe Ile Leu  
 65 70 75 80

Glu Lys Asn Pro Ile Tyr Ala Met Asn Val Glu Lys Ala Ser Ser Lys  
 85 90 95

Arg Ala Thr Ser Leu Phe Ile Asp Val Leu Thr Leu Glu Arg Asn Pro  
 100 105 110

Met Asn Ala Met Asn Val Gly Lys Ala Ser Ala Arg Arg His Val  
 115 120 125

<210> 71  
 <211> 1005  
 <212> DNA  
 <213> human organism

<400> 71  
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 aggttgcaca cttctaagaa gagcggcgtg gggggctcgg cgaccttcgc ttcagtcgct 180  
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 gaggagtgag actgcaggag atgtgggccc tgccaaagag atggatgaga ctgttgctga 360  
 gttcatcaag aggaccatct tgaaaatccc catgaatgaa ctgacaacaa tcctgaaggc 420  
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 cctgttagac atcatattata tgcaatttca tcagcaccag aaagtttggg atgtttttca 600  
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 gttcaagaaa attcttcaga gagcattaaa aaatgtgaca gtcagcttca gagaaactga 720  
 ggagaatgca gtctggattc gaattgcctg gggaacacag tacacaaagc caaaccagta 780

caaacctacc tacgtggtgt actactccca gactccgtac gccttcacgt cctcctccat 840  
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 ccgacaagag gagatcattt tagatattac cgaaatgaag aaagcttgca attagtgaac 960  
 atgaaaggaa aataaaaaatt cctcacagtc aaaaaaaaaa aaaaa 1005

<210> 72  
 <211> 204  
 <212> PRT  
 <213> human organism

<400> 72

Met Asp Glu Thr Val Ala Glu Phe Ile Lys Arg Thr Ile Leu Lys Ile  
 1 5 10 15

Pro Met Asn Glu Leu Thr Thr Ile Leu Lys Ala Trp Asp Phe Leu Ser  
 20 25 30

Glu Asn Gln Leu Gln Thr Val Asn Phe Arg Gln Arg Lys Glu Ser Val  
 35 40 45

Val Gln His Leu Ile His Leu Cys Glu Glu Lys Arg Ala Ser Ile Ser  
 50 55 60

Asp Ala Ala Leu Leu Asp Ile Ile Tyr Met Gln Phe His Gln His Gln  
 65 70 75 80

Lys Val Trp Asp Val Phe Gln Met Ser Lys Gly Pro Gly Glu Asp Val  
 85 90 95

Asp Leu Phe Asp Met Lys Gln Phe Lys Asn Ser Phe Lys Lys Ile Leu  
 100 105 110

Gln Arg Ala Leu Lys Asn Val Thr Val Ser Phe Arg Glu Thr Glu Glu  
 115 120 125

Asn Ala Val Trp Ile Arg Ile Ala Trp Gly Thr Gln Tyr Thr Lys Pro  
 130 135 140

Asn Gln Tyr Lys Pro Thr Tyr Val Val Tyr Tyr Ser Gln Thr Pro Tyr  
 145 150 155 160

Ala Phe Thr Ser Ser Ser Met Leu Arg Arg Asn Thr Pro Leu Leu Gly

165

170

175

Gln Glu Leu Glu Ala Thr Gly Lys Ile Tyr Leu Arg Gln Glu Glu Ile  
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Ile Leu Asp Ile Thr Glu Met Lys Lys Ala Cys Asn  
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<211> 374  
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<400> 74

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Ala Arg Pro Val Lys Leu Ala Ala Phe Pro Thr Ser Leu Ser Asp Cys  
35 40 45

Gln Thr Pro Thr Gly Trp Asn Cys Ser Gly Tyr Asp Asp Arg Glu Asn  
50 55 60

Asp Leu Phe Leu Cys Asp Thr Asn Thr Cys Lys Phe Asp Gly Glu Cys  
65 70 75 80

Leu Arg Ile Gly Asp Thr Val Thr Cys Val Cys Gln Phe Lys Cys Asn  
85 90 95

Asn Asp Tyr Val Pro Val Cys Gly Ser Asn Gly Glu Ser Tyr Gln Asn  
100 105 110

Glu Cys Tyr Leu Arg Gln Ala Ala Cys Lys Gln Gln Ser Glu Ile Leu  
115 120 125

Val Val Ser Glu Gly Ser Cys Ala Thr Asp Ala Gly Ser Gly Ser Gly  
130 135 140

Asp Gly Val His Glu Gly Ser Gly Glu Thr Ser Gln Lys Glu Thr Ser  
145 150 155 160

Thr Cys Asp Ile Cys Gln Phe Gly Ala Glu Cys Asp Glu Asp Ala Glu  
165 170 175

Asp Val Trp Cys Val Cys Asn Ile Asp Cys Ser Gln Thr Asn Phe Asn  
180 185 190

Pro Leu Cys Ala Ser Asp Gly Lys Ser Tyr Asp Asn Ala Cys Gln Ile  
195 200 205

Lys Glu Ala Ser Cys Gln Lys Gln Glu Lys Ile Glu Val Met Ser Leu  
 210 215 220

Gly Arg Cys Gln Asp Asn Thr Thr Thr Thr Thr Lys Ser Glu Asp Gly  
 225 230 235 240

His Tyr Ala Arg Thr Asp Tyr Ala Glu Asn Ala Asn Lys Leu Glu Glu  
 245 250 255

Ser Ala Arg Glu His His Ile Pro Cys Pro Glu His Tyr Asn Gly Phe  
 260 265 270

Cys Met His Gly Lys Cys Glu His Ser Ile Asn Met Gln Glu Pro Ser  
 275 280 285

Cys Arg Cys Asp Ala Gly Tyr Thr Gly Gln His Cys Glu Lys Lys Asp  
 290 295 300

Tyr Ser Val Leu Tyr Val Val Pro Gly Pro Val Arg Phe Gln Tyr Val  
 305 310 315 320

Leu Ile Ala Ala Val Ile Gly Thr Ile Gln Ile Ala Val Ile Cys Val  
 325 330 335

Val Val Leu Cys Ile Thr Arg Lys Cys Pro Arg Ser Asn Arg Ile His  
 340 345 350

Arg Gln Lys Gln Asn Thr Gly His Tyr Ser Ser Asp Asn Thr Thr Arg  
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Ala Ser Thr Arg Leu Ile  
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 <223> n is a, c, g, or t

<400> 75

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<210> 76
<211> 382
<212> PRT
<213> human organism

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<222> (19)..(19)
<223> Xaa can be any naturally occurring amino acid

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<400> 76

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Gly Arg Xaa Cys Ala Met Val Leu Ala Asp Phe Gly Ala Arg Val Val
          20          25          30

```

```

Arg Val Asp Arg Pro Gly Ser Arg Tyr Asp Val Ser Arg Leu Gly Arg
          35          40          45

```

```

Gly Lys Arg Ser Leu Val Leu Asp Leu Lys Gln Pro Arg Glu Pro Arg
          50          55          60

```

```

Ala Ala Ala Ser Val Gln Ala Val Gly Cys Ala Ala Gly Ala Leu Pro
65          70          75          80

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Pro Arg Cys His Gly Glu Thr Pro Ala Gly Pro Arg Asp Ser Ala Ala
          85          90          95

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Gly Lys Ser Lys Ala Tyr Leu Cys Gln Ala Glu Trp Ile Trp Pro Val
          100         105         110

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Gln Glu Ser Phe Cys Arg Leu Ala Gly His Asp Ile Asn Tyr Leu Ala
          115         120         125

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Leu Ser Gly Val Leu Ser Lys Ile Gly Arg Ser Gly Glu Asn Pro Tyr  
130 135 140

Ala Pro Leu Asn Leu Val Ala Asp Phe Ala Gly Gly Gly Leu Met Cys  
145 150 155 160

Ala Leu Gly Ile Ile Met Ala Leu Phe Asp Arg Thr Arg Thr Asp Lys  
165 170 175

Gly Gln Val Ile Asp Ala Asn Met Val Glu Gly Thr Ala Tyr Leu Ser  
180 185 190

Ser Phe Leu Trp Lys Thr Gln Lys Ser Ser Leu Trp Glu Ala Pro Arg  
195 200 205

Gly Gln Asn Met Leu Asp Gly Gly Ala Pro Phe Tyr Thr Thr Tyr Arg  
210 215 220

Thr Ala Asp Gly Glu Phe Met Ala Val Gly Ala Ile Glu Pro Gln Phe  
225 230 235 240

Tyr Glu Leu Leu Ile Lys Gly Leu Gly Leu Lys Ser Asp Glu Leu Pro  
245 250 255

Asn Gln Met Ser Thr Asp Asp Trp Pro Glu Met Lys Lys Lys Phe Ala  
260 265 270

Asp Val Phe Ala Lys Lys Thr Lys Ala Glu Trp Cys Gln Ile Phe Asp  
275 280 285

Gly Thr Asp Ala Cys Val Thr Pro Val Leu Thr Phe Glu Glu Val Val  
290 295 300

His His Asp His Asn Lys Glu Arg Gly Ser Phe Ile Thr Ser Glu Glu  
305 310 315 320

Gln Asp Val Ser Pro Arg Leu Ala Pro Leu Leu Leu Asn Thr Pro Ala  
325 330 335

Ile Pro Ser Ser Lys Gly Asp Pro Phe Ile Gly Glu His Thr Glu Glu  
340 345 350

Ile Leu Glu Glu Phe Gly Phe Ser Arg Glu Glu Ile Tyr Gln Leu Asn  
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 <211> 375  
 <212> PRT  
 <213> human organism

<400> 78

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			20					25					30		

Met	Gly	Glu	Gly	Pro	Glu	Arg	Gly	Arg	Val	Lys	Ile	Ala	Asp	Met	Gly
		35					40					45			

Phe	Ala	Arg	Leu	Phe	Asn	Ser	Pro	Leu	Lys	Pro	Leu	Ala	Asp	Leu	Asp
	50					55					60				

Pro Val Val Val Thr Phe Trp Tyr Arg Ala Pro Glu Leu Leu Leu Gly  
65 70 75 80

Ala Arg His Tyr Thr Lys Ala Ile Asp Ile Trp Ala Ile Gly Cys Ile  
85 90 95

Phe Ala Glu Leu Leu Thr Ser Glu Pro Ile Phe His Cys Arg Gln Glu  
100 105 110

Asp Ile Lys Thr Ser Asn Pro Phe His His Asp Gln Leu Asp Arg Ile  
115 120 125

Phe Ser Val Met Gly Phe Pro Ala Asp Lys Asp Trp Glu Asp Ile Arg  
130 135 140

Lys Met Pro Glu Tyr Pro Thr Leu Gln Lys Asp Phe Arg Arg Thr Thr  
145 150 155 160

Tyr Ala Asn Ser Ser Leu Ile Lys Tyr Met Glu Lys His Lys Val Lys  
165 170 175

Pro Asp Ser Lys Val Phe Leu Leu Leu Gln Lys Leu Leu Thr Met Asp  
180 185 190

Pro Thr Lys Arg Ile Thr Ser Glu Gln Ala Leu Gln Asp Pro Tyr Phe  
195 200 205

Gln Glu Asp Pro Leu Pro Thr Leu Asp Val Phe Ala Gly Cys Gln Ile  
210 215 220

Pro Tyr Pro Lys Arg Glu Phe Leu Asn Glu Asp Asp Pro Glu Glu Lys  
225 230 235 240

Gly Asp Lys Asn Gln Gln Gln Gln Gln Asn Gln His Gln Gln Pro Thr  
245 250 255

Ala Pro Pro Gln Gln Ala Ala Ala Pro Pro Gln Ala Pro Pro Pro Gln  
260 265 270

Gln Asn Ser Thr Gln Thr Asn Gly Thr Ala Gly Gly Ala Gly Ala Gly  
275 280 285

Val Gly Gly Thr Gly Ala Gly Leu Gln His Ser Gln Asp Ser Ser Leu  
 290 295 300

Asn Gln Val Pro Pro Asn Lys Lys Pro Arg Leu Gly Pro Ser Gly Ala  
 305 310 315 320

Asn Ser Gly Gly Pro Val Met Pro Ser Asp Tyr Gln His Ser Ser Ser  
 325 330 335

Arg Leu Asn Tyr Gln Ser Ser Val Gln Gly Ser Ser Gln Ser Gln Ser  
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Thr Leu Gly Tyr Ser Ser Ser Ser Gln Gln Ser Ser Gln Tyr His Pro  
 355 360 365

Ser His Gln Ala His Arg Tyr  
 370 375

<210> 79  
 <211> 2190  
 <212> DNA  
 <213> human organism

<400> 79  
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<212> PRT  
<213> human organism  
  
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Pro Ser Pro Thr Ile Cys Gly Ser Asn Tyr Pro Leu Ser Ile Ala Phe  
35 40 45

Ile Val Val Asn Glu Phe Cys Glu Arg Phe Ser Tyr Tyr Gly Met Lys  
50 55 60

Ala Val Leu Ile Leu Tyr Phe Leu Tyr Phe Leu His Trp Asn Glu Asp  
65 70 75 80

Thr Ser Thr Ser Ile Tyr His Ala Phe Ser Ser Leu Cys Tyr Phe Thr  
85 90 95

Pro Ile Leu Gly Ala Ala Ile Ala Asp Ser Trp Leu Gly Lys Phe Lys  
100 105 110

Thr Ile Ile Tyr Leu Ser Leu Val Tyr Val Leu Gly His Val Ile Lys  
115 120 125

Ser Leu Gly Ala Leu Pro Ile Leu Gly Gly Gln Val Val His Thr Val  
130 135 140

Leu Ser Leu Ile Gly Leu Ser Leu Ile Ala Leu Gly Thr Gly Gly Ile  
145 150 155 160

Lys Pro Cys Val Ala Ala Phe Gly Gly Asp Gln Phe Glu Glu Lys His  
165 170 175

Ala Glu Glu Arg Thr Arg Tyr Phe Ser Val Phe Tyr Leu Ser Ile Asn  
180 185 190

Ala Gly Ser Leu Ile Ser Thr Phe Ile Thr Pro Met Leu Arg Gly Asp  
195 200 205

Val Gln Cys Phe Gly Glu Asp Cys Tyr Ala Leu Ala Phe Gly Val Pro  
210 215 220

Gly Leu Leu Met Val Ile Ala Leu Val Val Phe Ala Met Gly Ser Lys  
225 230 235 240

Ile Tyr Asn Lys Pro Pro Pro Glu Gly Asn Ile Val Ala Gln Val Phe  
245 250 255

Lys Cys Ile Trp Phe Ala Ile Ser Asn Arg Phe Lys Asn Arg Ser Gly  
260 265 270

Asp Ile Pro Lys Arg Gln His Trp Leu Asp Trp Ala Ala Glu Lys Tyr  
275 280 285

Pro Lys Gln Leu Ile Met Asp Val Lys Ala Leu Thr Arg Val Leu Phe  
290 295 300

Leu Tyr Ile Pro Leu Pro Met Phe Trp Ala Leu Leu Asp Gln Gln Gly  
305 310 315 320

Ser Arg Trp Thr Leu Gln Ala Ile Arg Met Asn Arg Asn Leu Gly Phe  
325 330 335

Phe Val Leu Gln Pro Asp Gln Met Gln Val Leu Asn Pro Phe Leu Val  
340 345 350

Leu Ile Phe Ile Pro Leu Phe Asp Phe Val Ile Tyr Arg Leu Val Ser  
355 360 365

Lys Cys Gly Ile Asn Phe Ser Ser Leu Arg Lys Met Ala Val Gly Met  
370 375 380

Ile Leu Ala Cys Leu Ala Phe Ala Val Ala Ala Ala Val Glu Ile Lys  
385 390 395 400

Ile Asn Glu Met Ala Pro Ala Gln Ser Gly Pro Gln Glu Val Phe Leu  
405 410 415

Gln Val Leu Asn Leu Ala Asp Asp Glu Val Lys Val Thr Val Val Gly  
420 425 430

Asn Glu Asn Asn Ser Leu Leu Ile Glu Ser Ile Lys Ser Phe Gln Lys  
435 440 445

Thr Pro His Tyr Ser Lys Leu His Leu Lys Thr Lys Ser Gln Asp Phe  
450 455 460

His Phe His Leu Lys Tyr His Asn Leu Ser Leu Tyr Thr Glu His Ser  
465 470 475 480

Val Gln Glu Lys Asn Trp Tyr Ser Leu Val Ile Arg Glu Asp Gly Asn  
485 490 495

Ser Ile Ser Ser Met Met Val Lys Asp Thr Glu Ser Lys Thr Thr Asn  
500 505 510

Gly Met Thr Thr Val Arg Phe Val Asn Thr Leu His Lys Asp Val Asn  
515 520 525

Ile Ser Leu Ser Thr Asp Thr Ser Leu Asn Val Gly Glu Asp Tyr Gly  
530 535 540

Val Ser Ala Tyr Arg Thr Val Gln Arg Gly Glu Tyr Pro Ala Val His  
545 550 555 560

Cys Arg Thr Glu Asp Lys Asn Phe Ser Leu Asn Leu Gly Leu Leu Asp  
565 570 575

Phe Gly Ala Ala Tyr Leu Phe Val Ile Thr Asn Asn Thr Asn Gln Gly  
580 585 590

Leu Gln Ala Trp Lys Ile Glu Asp Ile Pro Ala Asn Lys Met Ser Ile  
595 600 605

Ala Trp Gln Leu Pro Gln Tyr Ala Leu Val Thr Ala Gly Glu Val Met  
610 615 620

Phe Ser Val Thr Gly Leu Glu Phe Ser Tyr Ser Gln Ala Pro Ser Ser  
625 630 635 640

Met Lys Ser Val Leu Gln Ala Ala Trp Leu Leu Thr Ile Ala Val Gly  
645 650 655

Asn Ile Ile Val Leu Val Val Ala Gln Phe Ser Gly Leu Val Gln Trp  
660 665 670

Ala Glu Phe Ile Leu Phe Ser Cys Leu Leu Leu Val Ile Cys Leu Ile  
675 680 685

Phe Ser Ile Met Gly Tyr Tyr Tyr Val Pro Val Lys Thr Glu Asp Met

690

695

700

Arg Gly Pro Ala Asp Lys His Ile Pro His Ile Gln Gly Asn Met Ile  
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Lys Leu Glu Thr Lys Lys Thr Lys Leu  
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&lt;210&gt; 81

&lt;211&gt; 1221

&lt;212&gt; DNA

&lt;213&gt; human organism

&lt;400&gt; 81

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1221

<210> 82  
<211> 406  
<212> PRT  
<213> human organism

<400> 82

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Thr Ser Ser Ser Ser Ala Val Ser Glu Ala Ser Phe Ser Tyr Lys Glu  
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Asn Leu Ile Gly Ala Leu Leu Ala Ile Phe Gly His Leu Val Val Ser  
35 40 45

Ile Ala Leu Asn Leu Gln Lys Tyr Cys His Ile Arg Leu Ala Gly Ser  
50 55 60

Lys Asp Pro Arg Ala Tyr Phe Lys Thr Lys Thr Trp Trp Leu Gly Leu  
65 70 75 80

Phe Leu Met Leu Leu Gly Glu Leu Gly Val Phe Ala Ser Tyr Ala Phe  
85 90 95

Ala Pro Leu Ser Leu Ile Val Pro Leu Ser Ala Val Ser Val Ile Ala  
100 105 110

Ser Ala Ile Ile Gly Ile Ile Phe Ile Lys Glu Lys Trp Lys Pro Lys  
115 120 125

Asp Phe Leu Arg Arg Tyr Val Leu Ser Phe Val Gly Cys Gly Leu Ala  
130 135 140

Val Val Gly Thr Tyr Leu Leu Val Thr Phe Ala Pro Asn Ser His Glu  
145 150 155 160

Lys Met Thr Gly Glu Asn Val Thr Arg His Leu Val Ser Trp Pro Phe  
165 170 175

Leu Leu Tyr Met Leu Val Glu Ile Ile Leu Phe Cys Leu Leu Leu Tyr  
180 185 190

Phe Tyr Lys Glu Lys Asn Ala Asn Asn Ile Val Val Ile Leu Leu Leu  
195 200 205

Val Ala Leu Leu Gly Ser Met Thr Val Val Thr Val Lys Ala Val Ala  
210 215 220

Gly Met Leu Val Leu Ser Ile Gln Gly Asn Leu Gln Leu Asp Tyr Pro  
225 230 235 240

Ile Phe Tyr Val Met Phe Val Cys Met Val Ala Thr Ala Val Tyr Gln  
245 250 255

Ala Ala Phe Leu Ser Gln Ala Ser Gln Met Tyr Asp Ser Ser Leu Ile  
260 265 270

Ala Ser Val Gly Tyr Ile Leu Ser Thr Thr Ile Ala Ile Thr Ala Gly  
275 280 285

Ala Ile Phe Tyr Leu Asp Phe Ile Gly Glu Asp Val Leu His Ile Cys  
290 295 300

Met Phe Ala Leu Gly Cys Leu Ile Ala Phe Leu Gly Val Phe Leu Ile  
305 310 315 320

Thr Arg Asn Arg Lys Lys Pro Ile Pro Phe Glu Pro Tyr Ile Ser Met  
325 330 335

Asp Ala Met Pro Gly Met Gln Asn Met His Asp Lys Gly Met Thr Val  
340 345 350

Gln Pro Glu Leu Lys Ala Ser Phe Ser Tyr Gly Ala Leu Glu Asn Asn  
355 360 365

Asp Asn Ile Ser Glu Ile Tyr Ala Pro Ala Thr Leu Pro Val Met Gln  
370 375 380

Glu Glu His Gly Ser Arg Ser Ala Ser Gly Val Pro Tyr Arg Val Leu  
385 390 395 400

Glu His Thr Lys Lys Glu  
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 <211> 1316  
 <212> DNA  
 <213> human organism

<400> 83  
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 <212> PRT  
 <213> human organism

<400> 84

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Arg Leu Leu Ser Met Val Pro Gly Pro Ala Arg Pro Pro Gly Ser Cys  
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Trp Asp Pro Thr Gln Cys Thr Arg Thr Trp Leu Leu Ser His Thr Pro  
35 40 45

Arg Arg Arg Trp Ile Ser Gly Leu Pro Arg Ala Ser Cys Arg Leu Gly  
50 55 60

Glu Glu Pro Pro Pro Leu Pro Tyr Cys Asp Gln Ala Tyr Gly Glu Glu  
65 70 75 80

Leu Ser Ile Arg His Arg Glu Thr Trp Ala Trp Leu Ser Arg Thr Asp  
85 90 95

Thr Ala Trp Pro Gly Ala Pro Gly Val Lys Gln Ala Arg Ile Leu Gly  
100 105 110

Glu Leu Leu Leu Val  
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<210> 86
<211> 512
<212> PRT
<213> human organism

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<400> 86
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Pro Pro Ala Leu Pro Arg Pro Ile Arg Asn Leu Glu Val Lys Phe Thr
20           25           30

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Lys Ile Phe Ile Asn Asn Glu Trp His Glu Ser Lys Ser Gly Lys Lys  
35 40 45

Phe Ala Thr Cys Asn Pro Ser Thr Arg Glu Gln Ile Cys Glu Val Glu  
50 55 60

Glu Gly Asp Lys Pro Asp Val Asp Lys Ala Val Glu Ala Ala Gln Val  
65 70 75 80

Ala Phe Gln Arg Gly Ser Pro Trp Arg Arg Leu Asp Ala Leu Ser Arg  
85 90 95

Gly Arg Leu Leu His Gln Leu Ala Asp Leu Val Glu Arg Asp Arg Ala  
100 105 110

Thr Leu Ala Ala Leu Glu Thr Met Asp Thr Gly Lys Pro Phe Leu His  
115 120 125

Ala Phe Phe Ile Asp Leu Glu Gly Cys Ile Arg Thr Leu Arg Tyr Phe  
130 135 140

Ala Gly Trp Ala Asp Lys Ile Gln Gly Lys Thr Ile Pro Thr Asp Asp  
145 150 155 160

Asn Val Val Cys Phe Thr Arg His Glu Pro Ile Gly Val Cys Gly Ala  
165 170 175

Ile Thr Pro Trp Asn Phe Pro Leu Leu Met Leu Val Trp Lys Leu Ala  
180 185 190

Pro Ala Leu Cys Cys Gly Asn Thr Met Val Leu Lys Pro Ala Glu Gln  
195 200 205

Thr Pro Leu Thr Ala Leu Tyr Leu Gly Ser Leu Ile Lys Glu Ala Gly  
210 215 220

Phe Pro Pro Gly Val Val Asn Ile Val Pro Gly Phe Gly Pro Thr Val  
225 230 235 240

Gly Ala Ala Ile Ser Ser His Pro Gln Ile Asn Lys Ile Ala Phe Thr  
245 250 255

Gly Ser Thr Glu Val Gly Lys Leu Val Lys Glu Ala Ala Ser Arg Ser

260

265

270

Asn Leu Lys Arg Val Thr Leu Glu Leu Gly Gly Lys Asn Pro Cys Ile  
 275 280 285

Val Cys Ala Asp Ala Asp Leu Asp Leu Ala Val Glu Cys Ala His Gln  
 290 295 300

Gly Val Phe Phe Asn Gln Gly Gln Cys Cys Thr Ala Ala Ser Arg Val  
 305 310 315 320

Phe Val Glu Glu Gln Val Tyr Ser Glu Phe Val Arg Arg Ser Val Glu  
 325 330 335

Tyr Ala Lys Lys Arg Pro Val Gly Asp Pro Phe Asp Val Lys Thr Glu  
 340 345 350

Gln Gly Pro Gln Ile Asp Gln Lys Gln Phe Asp Lys Ile Leu Glu Leu  
 355 360 365

Ile Glu Ser Gly Lys Lys Glu Gly Ala Lys Leu Glu Cys Gly Gly Ser  
 370 375 380

Ala Met Glu Asp Lys Gly Leu Phe Ile Lys Pro Thr Val Phe Ser Glu  
 385 390 395 400

Val Thr Asp Asn Met Arg Ile Ala Lys Glu Glu Ile Phe Gly Pro Val  
 405 410 415

Gln Pro Ile Leu Lys Phe Lys Ser Ile Glu Glu Val Ile Lys Arg Ala  
 420 425 430

Asn Ser Thr Asp Tyr Gly Leu Thr Ala Ala Val Phe Thr Lys Asn Leu  
 435 440 445

Asp Lys Ala Leu Lys Leu Ala Ser Ala Leu Glu Ser Gly Thr Val Trp  
 450 455 460

Ile Asn Cys Tyr Asn Ala Leu Tyr Ala Gln Ala Pro Phe Gly Gly Phe  
 465 470 475 480

Lys Met Ser Gly Asn Gly Arg Glu Leu Gly Glu Tyr Ala Leu Ala Glu  
 485 490 495

Tyr Thr Glu Val Lys Thr Val Thr Ile Lys Leu Gly Asp Lys Asn Pro  
500 505 510

<210> 87  
<211> 2252  
<212> DNA  
<213> human organism

<400> 87  
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acagagggaa ccctactctg gaaactgtca gtcccagggc actggggagg gctgaggccg 180  
accatgccca gcctgtctgt gctgttcacg gctgtctctgc tgtccagctg ggctcagctt 240  
ctgacagacg ccaactcctg gtggctcatta gctttgaacc cggcgcagag acccgagatg 300  
tttatcatcg gtgcccagcc cgtgtgcagt cagcttcccc ggctctcccc tggccagagg 360  
aagctgtgcc aattgtacca ggagcacatg gcctacatag gggagggagc caagactggc 420  
atcaaggaat gccagcacca gttccggcag cggcgggtgga attgcagcac agcggacaac 480  
gcatctgtct ttgggagagt catgcagata ggcagccgag agaccgcctt caccacgcg 540  
gtgagcgccg cgggcgtggt caacgccatc agccgggcct gccgcgaggg cgagctctcc 600  
acctgcgggt gcagccggac ggcgcggccc aaggacctgc cccgggactg gctgtggggc 660  
ggctgtgggg acaacgtgga gtacggctac cgcttcgcca aggagtttgt ggatgcccgg 720  
gagcgagaga agaactttgc caaaggatca gaggagcagg gccgggtgct catgaacctg 780  
caaaacaacg aggccggtcg cagggtgtgt tataagatgg cagacgtagc ctgcaaattg 840  
cacggcgtct cggggtcctg cagcctcaag acctgtgtgc tgcagctggc cgagtccgc 900  
aaggtcgggg accggctgaa ggagaagtac gacagcgcg cgcgccatgcg cgtcacccgc 960  
aagggccggc tggagctggt caacagccgc ttcaccacgc ccaccccgga ggacctggtc 1020  
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cagggccgcc tctgcaacaa gacctcggag ggcattggatg gctgtgagct catgtgtctg 1140  
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tagcccggag ggcctgtctc cggccccccc tgcactctgc ctcacaaagg tctatattat 1320  
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 ccctaaactg aatgtttgct cctgggctgc agaagccagg gtgcatgacc aggctgcgtg 2040  
 gacgttatac tgtcttcccc caccctcggg gaggggaagc ttgagctgct gctgtcactc 2100  
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 tggaaaaaaa aaaaagaaaa aaaaaaaaaa aa 2252

<210> 88  
 <211> 359  
 <212> PRT  
 <213> human organism

<400> 88

Met Pro Ser Leu Leu Leu Phe Thr Ala Ala Leu Leu Ser Ser Trp  
 1 5 10 15

Ala Gln Leu Leu Thr Asp Ala Asn Ser Trp Trp Ser Leu Ala Leu Asn  
 20 25 30

Pro Val Gln Arg Pro Glu Met Phe Ile Ile Gly Ala Gln Pro Val Cys  
 35 40 45

Ser Gln Leu Pro Gly Leu Ser Pro Gly Gln Arg Lys Leu Cys Gln Leu  
 50 55 60

Tyr Gln Glu His Met Ala Tyr Ile Gly Glu Gly Ala Lys Thr Gly Ile  
 65 70 75 80

Lys Glu Cys Gln His Gln Phe Arg Gln Arg Arg Trp Asn Cys Ser Thr  
85 90 95

Ala Asp Asn Ala Ser Val Phe Gly Arg Val Met Gln Ile Gly Ser Arg  
100 105 110

Glu Thr Ala Phe Thr His Ala Val Ser Ala Ala Gly Val Val Asn Ala  
115 120 125

Ile Ser Arg Ala Cys Arg Glu Gly Glu Leu Ser Thr Cys Gly Cys Ser  
130 135 140

Arg Thr Ala Arg Pro Lys Asp Leu Pro Arg Asp Trp Leu Trp Gly Gly  
145 150 155 160

Cys Gly Asp Asn Val Glu Tyr Gly Tyr Arg Phe Ala Lys Glu Phe Val  
165 170 175

Asp Ala Arg Glu Arg Glu Lys Asn Phe Ala Lys Gly Ser Glu Glu Gln  
180 185 190

Gly Arg Val Leu Met Asn Leu Gln Asn Asn Glu Ala Gly Arg Arg Ala  
195 200 205

Val Tyr Lys Met Ala Asp Val Ala Cys Lys Cys His Gly Val Ser Gly  
210 215 220

Ser Cys Ser Leu Lys Thr Cys Trp Leu Gln Leu Ala Glu Phe Arg Lys  
225 230 235 240

Val Gly Asp Arg Leu Lys Glu Lys Tyr Asp Ser Ala Ala Ala Met Arg  
245 250 255

Val Thr Arg Lys Gly Arg Leu Glu Leu Val Asn Ser Arg Phe Thr Gln  
260 265 270

Pro Thr Pro Glu Asp Leu Val Tyr Val Asp Pro Ser Pro Asp Tyr Cys  
275 280 285

Leu Arg Asn Glu Ser Thr Gly Ser Leu Gly Thr Gln Gly Arg Leu Cys  
290 295 300

Asn Lys Thr Ser Glu Gly Met Asp Gly Cys Glu Leu Met Cys Cys Gly  
 305 310 315 320

Arg Gly Tyr Asn Gln Phe Lys Ser Val Gln Val Glu Arg Cys His Cys  
 325 330 335

Lys Phe His Trp Cys Cys Phe Val Arg Cys Lys Lys Cys Thr Glu Ile  
 340 345 350

Val Asp Gln Tyr Ile Cys Lys  
 355

<210> 89  
 <211> 794  
 <212> DNA  
 <213> human organism

<400> 89  
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 ctgaagaaga tgaacaagcg ccagctctat taccaggttt taaacttcgc catgatcgtg 180  
 tcttctgcac tcatgatatg gaaaggcttg atcgtgctca caggcagtga gagccccatc 240  
 gtgggtggtgc tgagtggcag tatggagccg gcctttcaca gaggagacct cctgttcctc 300  
 acaaatttcc gggaagaccc aatcagagct ggtgaaatag ttgtttttta agttgaagga 360  
 cgagacattc caatagttca cagagtaatc aaagtcatg aaaaagataa tggagacatc 420  
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 cagaactggc tggaaaagaa ggacgtggtg ggaagagcaa gagggttttt accatatgtt 540  
 ggtatggtca ccataataat gaatgactat ccaaaattca agtatgctct tttggctgta 600  
 atgggtgcat atgtgttact aaaacgtgaa tcctaaaatg agaagcagtt cctgggacca 660  
 gattgaaatg aattctgttg aaaaagagaa aaactaatat atttgagatg ttccattttc 720  
 tgtataaaag ggaacagtgt ggagatgttt ttgtcttgctc caaataaaag attcaccagt 780  
 aaaaaaaaaa aaaa 794

<210> 90  
 <211> 192  
 <212> PRT  
 <213> human organism



<400> 90

Met Val Arg Ala Gly Ala Val Gly Ala His Leu Pro Ala Ser Gly Leu  
1 5 10 15

Asp Ile Phe Gly Asp Leu Lys Lys Met Asn Lys Arg Gln Leu Tyr Tyr  
20 25 30

Gln Val Leu Asn Phe Ala Met Ile Val Ser Ser Ala Leu Met Ile Trp  
35 40 45

Lys Gly Leu Ile Val Leu Thr Gly Ser Glu Ser Pro Ile Val Val Val  
50 55 60

Leu Ser Gly Ser Met Glu Pro Ala Phe His Arg Gly Asp Leu Leu Phe  
65 70 75 80

Leu Thr Asn Phe Arg Glu Asp Pro Ile Arg Ala Gly Glu Ile Val Val  
85 90 95

Phe Lys Val Glu Gly Arg Asp Ile Pro Ile Val His Arg Val Ile Lys  
100 105 110

Val His Glu Lys Asp Asn Gly Asp Ile Lys Phe Leu Thr Lys Gly Asp  
115 120 125

Asn Asn Glu Val Asp Asp Arg Gly Leu Tyr Lys Glu Gly Gln Asn Trp  
130 135 140

Leu Glu Lys Lys Asp Val Val Gly Arg Ala Arg Gly Phe Leu Pro Tyr  
145 150 155 160

Val Gly Met Val Thr Ile Ile Met Asn Asp Tyr Pro Lys Phe Lys Tyr  
165 170 175

Ala Leu Leu Ala Val Met Gly Ala Tyr Val Leu Leu Lys Arg Glu Ser  
180 185 190

<210> 91

<211> 2108

<212> DNA

<213> human organism

<400> 91

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tacgccaact ataggactcg tgcttctcgt acgctgggct ataatctatg aaactgagct	180
ccagagccag ccaatcactt agctcctcat aacaagtcta actggctctg gaaagctgaa	240
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cactttgcct ctaaaggcca gagaaaaatc acagcttcct tgtcggaggg gaaaaggaca	360
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caggttgtta gaattgttac cccctttact cagagataac atagattatc caggctgaga	600
tggaaaacaa gccctttatt gaattttcaa cacagactcc ctgcttctca tctccttaat	660
aaaatttcat taaaatcccc ttgaactccc atgttcaaat ctccatttgt tgacagacaa	720
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tttcccatag gaagacttca cctcctacaa ctccgaagaa aacccttact gtccaagacc	840
gtcaccagca accatccgca gtcattcaag tggaagcttt cacagctttt gtacattctc	900
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gatgtcccat tattatccac cctgagccac cataatatgc tgtttacatt tattttcttc	1260
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tctcaaaatc tgggccaaga atgattgcta ggtccataag ctaatttgtc tggccttgcc	1740

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 gaaccagttt cctggtaggg aactgctgac agtttcaatg ctgacagttg gagccaatgc 1980  
 ctcatagtgt aaactgaaag aaaaatagtt gctttttaaa atgtcagcaa gaaggcctgc 2040  
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 aaaaaaaaa 2108

<210> 92  
 <211> 59  
 <212> PRT  
 <213> human organism

<400> 92

Met Gln Cys Gln Leu Phe Arg Thr Glu Thr Ser Lys Ala Val Ser Glu  
 1 5 10 15

Leu Asn Tyr Asp Tyr Ile Cys Ile Lys Ala Gly Thr Gly Arg Pro Gln  
 20 25 30

Gly Thr Pro Thr Ile Gly Leu Val Leu Leu Val Arg Trp Ala Ile Ile  
 35 40 45

Tyr Glu Thr Glu Leu Gln Ser Gln Pro Ile Thr  
 50 55

<210> 93  
 <211> 1991  
 <212> DNA  
 <213> human organism

<400> 93

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 gtggccatca agcaactctc cgctgggtgtc gaggacaaga gaaccacaag ccgtggccag 360  
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ttggctgtcc tagagaaacg cgtggaattg gaaggactaa aagtgggtgga gattgagaaa	660
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tgtgtccacg acaactacag aaacaacccc ttccacaact tccggcactg cttctgcgtg	1020
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aaaaaaaaa a	1991

<211> 593  
<212> PRT  
<213> human organism

<400> 94

Met Gly Ser Gly Ser Ser Ser Tyr Arg Pro Lys Ala Ile Tyr Leu Asp  
1 5 10 15

Ile Asp Gly Arg Ile Gln Lys Val Ile Phe Ser Lys Tyr Cys Asn Ser  
20 25 30

Ser Asp Ile Met Asp Leu Phe Cys Ile Ala Thr Gly Leu Pro Arg Asn  
35 40 45

Thr Thr Ile Ser Leu Leu Thr Thr Asp Asp Ala Met Val Ser Ile Asp  
50 55 60

Pro Thr Met Pro Ala Asn Ser Glu Arg Thr Pro Tyr Lys Val Arg Pro  
65 70 75 80

Val Ala Ile Lys Gln Leu Ser Ala Gly Val Glu Asp Lys Arg Thr Thr  
85 90 95

Ser Arg Gly Gln Ser Ala Glu Arg Pro Leu Arg Asp Arg Arg Val Val  
100 105 110

Gly Leu Glu Gln Pro Arg Arg Glu Gly Ala Phe Glu Ser Gly Gln Val  
115 120 125

Glu Pro Arg Pro Arg Glu Pro Gln Gly Cys Tyr Gln Glu Gly Gln Arg  
130 135 140

Ile Pro Pro Glu Arg Glu Glu Leu Ile Gln Ser Val Leu Ala Gln Val  
145 150 155 160

Ala Glu Gln Phe Ser Arg Ala Phe Lys Ile Asn Glu Leu Lys Ala Glu  
165 170 175

Val Ala Asn His Leu Ala Val Leu Glu Lys Arg Val Glu Leu Glu Gly  
180 185 190

Leu Lys Val Val Glu Ile Glu Lys Cys Lys Ser Asp Ile Lys Lys Met  
195 200 205

Arg Glu Glu Leu Ala Ala Arg Ser Ser Arg Thr Asn Cys Pro Cys Lys  
210 215 220

Tyr Ser Phe Leu Asp Asn His Lys Lys Leu Thr Pro Arg Arg Asp Val  
225 230 235 240

Pro Thr Tyr Pro Lys Tyr Leu Leu Ser Pro Glu Thr Ile Glu Ala Leu  
245 250 255

Arg Lys Pro Thr Phe Asp Val Trp Leu Trp Glu Pro Asn Glu Met Leu  
260 265 270

Ser Cys Leu Glu His Met Tyr His Asp Leu Gly Leu Val Arg Asp Phe  
275 280 285

Ser Ile Asn Pro Val Thr Leu Arg Arg Trp Leu Phe Cys Val His Asp  
290 295 300

Asn Tyr Arg Asn Asn Pro Phe His Asn Phe Arg His Cys Phe Cys Val  
305 310 315 320

Ala Gln Met Met Tyr Ser Met Val Trp Leu Cys Ser Leu Gln Glu Lys  
325 330 335

Phe Ser Gln Thr Asp Ile Leu Ile Leu Met Thr Ala Ala Ile Cys His  
340 345 350

Asp Leu Asp His Pro Gly Tyr Asn Asn Thr Tyr Gln Ile Asn Ala Arg  
355 360 365

Thr Glu Leu Ala Val Arg Tyr Asn Asp Ile Ser Pro Leu Glu Asn His  
370 375 380

His Cys Ala Val Ala Phe Gln Ile Leu Ala Glu Pro Glu Cys Asn Ile  
385 390 395 400

Phe Ser Asn Ile Pro Pro Asp Gly Phe Lys Gln Ile Arg Gln Gly Met  
405 410 415

Ile Thr Leu Ile Leu Ala Thr Asp Met Ala Arg His Ala Glu Ile Met  
420 425 430

Asp Ser Phe Lys Glu Lys Met Glu Asn Phe Asp Tyr Ser Asn Glu Glu  
 435 440 445

His Met Thr Leu Leu Lys Met Ile Leu Ile Lys Cys Cys Asp Ile Ser  
 450 455 460

Asn Glu Val Arg Pro Met Glu Val Ala Glu Pro Trp Val Asp Cys Leu  
 465 470 475 480

Leu Glu Glu Tyr Phe Met Gln Ser Asp Arg Glu Lys Ser Glu Gly Leu  
 485 490 495

Pro Val Ala Pro Phe Met Asp Arg Asp Lys Val Thr Lys Ala Thr Ala  
 500 505 510

Gln Ile Gly Phe Ile Lys Phe Val Leu Ile Pro Met Phe Glu Thr Val  
 515 520 525

Thr Lys Leu Phe Pro Met Val Glu Glu Ile Met Leu Gln Pro Leu Trp  
 530 535 540

Glu Ser Arg Asp Arg Tyr Glu Glu Leu Lys Arg Ile Asp Asp Ala Met  
 545 550 555 560

Lys Glu Leu Gln Lys Lys Thr Asp Ser Leu Thr Ser Gly Ala Thr Glu  
 565 570 575

Lys Ser Arg Glu Arg Ser Arg Asp Val Lys Asn Ser Glu Gly Asp Cys  
 580 585 590

Ala

<210> 95

<211> 691

<212> DNA

<213> human organism

<400> 95

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tttcagcacc actgaagact acgaccatga aatcacaggg ctgcgggtgt ctgtaggtct	180
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 gctggtgggc atctatggcc agtatcaact ccttggcatc aagagcattg gctttgaatg 480  
 gaattatcca ctagaggagc cgaccactga gccaccagtt aatctcacat actcagcaaa 540  
 ctcaccctg ggtcgctagg gtgggggtatg gggccatccg agctgaggcc atctgtgtgg 600  
 tggtggctga tggtactgga gtaactgagt cgggacgctg aatctgaatc caccaataaa 660  
 taaagcttct gcagaatcag tgaaaaaaaa a 691

<210> 96  
 <211> 172  
 <212> PRT  
 <213> human organism

<400> 96

Met Leu Leu Leu Leu Thr Leu Ala Leu Leu Gly Gly Pro Thr Trp Ala  
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Gly Lys Met Tyr Gly Pro Gly Gly Gly Lys Tyr Phe Ser Thr Thr Glu  
 20 25 30

Asp Tyr Asp His Glu Ile Thr Gly Leu Arg Val Ser Val Gly Leu Leu  
 35 40 45

Leu Val Lys Ser Val Gln Val Lys Leu Gly Asp Ser Trp Asp Val Lys  
 50 55 60

Leu Gly Ala Leu Gly Gly Asn Thr Gln Glu Val Thr Leu Gln Pro Gly  
 65 70 75 80

Glu Tyr Ile Thr Lys Val Phe Val Ala Phe Gln Ala Phe Leu Arg Gly  
 85 90 95

Met Val Met Tyr Thr Ser Lys Asp Arg Tyr Phe Tyr Phe Gly Lys Leu  
 100 105 110

Asp Gly Gln Ile Ser Ser Ala Tyr Pro Ser Gln Glu Gly Gln Val Leu  
 115 120 125



Val Gly Ile Tyr Gly Gln Tyr Gln Leu Leu Gly Ile Lys Ser Ile Gly  
 130 135 140

Phe Glu Trp Asn Tyr Pro Leu Glu Glu Pro Thr Thr Glu Pro Pro Val  
 145 150 155 160

Asn Leu Thr Tyr Ser Ala Asn Ser Pro Val Gly Arg  
 165 170

<210> 97  
 <211> 1059  
 <212> DNA  
 <213> human organism

<400> 97  
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 agctcacccc atactcgacg atcgacacgt ggccaggccg gcggagcgga ggcattgatg 660  
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<210> 98  
 <211> 287

<212> PRT  
<213> human organism

<400> 98

Met Pro Pro Leu Trp Ala Leu Leu Ala Leu Gly Cys Leu Arg Phe Gly  
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Ser Ala Val Asn Leu Gln Pro Gln Leu Ala Ser Val Thr Phe Ala Thr  
20 25 30

Asn Asn Pro Thr Leu Thr Thr Val Ala Leu Glu Lys Pro Leu Cys Met  
35 40 45

Phe Asp Ser Lys Glu Ala Leu Thr Gly Thr His Glu Val Tyr Leu Tyr  
50 55 60

Val Leu Val Asp Ser Ala Ile Ser Arg Asn Ala Ser Val Gln Asp Ser  
65 70 75 80

Thr Asn Thr Pro Leu Gly Ser Thr Phe Leu Gln Thr Glu Gly Gly Arg  
85 90 95

Thr Gly Pro Tyr Lys Ala Val Ala Phe Asp Leu Ile Pro Cys Ser Asp  
100 105 110

Leu Pro Ser Leu Asp Ala Ile Gly Asp Val Ser Lys Ala Ser Gln Ile  
115 120 125

Leu Asn Ala Tyr Leu Val Arg Val Gly Ala Asn Gly Thr Cys Leu Trp  
130 135 140

Asp Pro Asn Phe Gln Gly Leu Cys Asn Ala Pro Leu Ser Ala Ala Thr  
145 150 155 160

Glu Tyr Arg Phe Lys Tyr Val Leu Val Asn Met Ser Thr Gly Leu Val  
165 170 175

Glu Asp Gln Thr Leu Trp Ser Asp Pro Ile Arg Thr Asn Gln Leu Thr  
180 185 190

Pro Tyr Ser Thr Ile Asp Thr Trp Pro Gly Arg Arg Ser Gly Gly Met  
195 200 205

Ile Val Ile Thr Ser Ile Leu Gly Ser Leu Pro Phe Phe Leu Leu Val  
 210 215 220

Gly Phe Ala Gly Ala Ile Ala Leu Ser Leu Val Asp Met Gly Ser Ser  
 225 230 235 240

Asp Gly Glu Thr Thr His Asp Ser Gln Ile Thr Gln Glu Ala Val Pro  
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Lys Ser Leu Gly Ala Ser Glu Ser Ser Tyr Thr Ser Val Asn Arg Gly  
 260 265 270

Pro Pro Leu Asp Arg Ala Glu Val Tyr Ser Ser Lys Leu Gln Asp  
 275 280 285

<210> 99  
 <211> 1894  
 <212> DNA  
 <213> human organism

<400> 99  
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cccggaatg gataataaag atactagaga actg 1894

<210> 100  
<211> 335  
<212> PRT  
<213> human organism

<400> 100

Met Gly Ser Ala Ser Pro Gly Leu Ser Ser Val Ser Pro Ser His Leu  
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Leu Leu Pro Pro Asp Thr Val Ser Arg Thr Gly Leu Glu Lys Ala Ala  
20 25 30

Ala Gly Ala Val Gly Leu Glu Arg Arg Asp Trp Ser Pro Ser Pro Pro  
35 40 45

Ala Thr Pro Glu Gln Gly Leu Ser Ala Phe Tyr Leu Ser Tyr Phe Asp  
50 55 60

Met Leu Tyr Pro Glu Asp Ser Ser Trp Ala Ala Lys Ala Pro Gly Ala  
65 70 75 80

Ser Ser Arg Glu Glu Pro Pro Glu Glu Pro Glu Gln Cys Pro Val Ile  
85 90 95

Asp Ser Gln Ala Pro Ala Gly Ser Leu Asp Leu Val Pro Gly Gly Leu  
100 105 110

Thr Leu Glu Glu His Ser Leu Glu Gln Val Gln Ser Met Val Val Gly  
115 120 125

Glu Val Leu Lys Asp Ile Glu Thr Ala Cys Lys Leu Leu Asn Ile Thr  
130 135 140

Ala Asp Pro Met Asp Trp Ser Pro Ser Asn Val Gln Lys Trp Leu Leu  
145 150 155 160

Trp Thr Glu His Gln Tyr Arg Leu Pro Pro Met Gly Lys Ala Phe Gln  
165 170 175

Glu Leu Ala Gly Lys Glu Leu Cys Ala Met Ser Glu Glu Gln Phe Arg  
180 185 190

Gln Arg Ser Pro Leu Gly Gly Asp Val Leu His Ala His Leu Asp Ile  
195 200 205

Trp Lys Ser Ala Ala Trp Met Lys Glu Arg Thr Ser Pro Gly Ala Ile  
210 215 220

His Tyr Cys Ala Ser Thr Ser Glu Glu Ser Trp Thr Asp Ser Glu Val  
225 230 235 240

Asp Ser Ser Cys Ser Gly Gln Pro Ile His Leu Trp Gln Phe Leu Lys  
245 250 255

Glu Leu Leu Leu Lys Pro His Ser Tyr Gly Arg Phe Ile Arg Trp Leu  
260 265 270

Asn Lys Glu Lys Gly Ile Phe Lys Ile Glu Asp Ser Ala Gln Val Ala  
275 280 285

Arg Leu Trp Gly Ile Arg Lys Asn Arg Pro Ala Met Asn Tyr Asp Lys

290

295

300

Leu Ser Arg Ser Ile Arg Gln Tyr Tyr Lys Lys Gly Ile Ile Arg Lys  
 305 310 315 320

Pro Asp Ile Ser Gln Arg Leu Val Tyr Gln Phe Val His Pro Ile  
 325 330 335

<210> 101  
 <211> 2664  
 <212> DNA  
 <213> human organism

<400> 101  
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<210> 102  
 <211> 529  
 <212> PRT  
 <213> human organism

<400> 102

Met Gly Pro Ser Cys Pro Val Phe Leu Ser Phe Thr Lys Leu Ser Leu  
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Trp Trp Leu Leu Leu Thr Pro Ala Gly Gly Glu Glu Ala Lys Arg Pro  
20 25 30

Pro Pro Arg Ala Pro Gly Asp Pro Leu Ser Ser Pro Ser Pro Thr Ala  
35 40 45

Leu Pro Gln Gly Gly Ser His Thr Glu Thr Glu Asp Arg Leu Phe Lys  
50 55 60

His Leu Phe Arg Gly Tyr Asn Arg Trp Ala Arg Pro Val Pro Asn Thr  
65 70 75 80

Ser Asp Val Val Ile Val Arg Phe Gly Leu Ser Ile Ala Gln Leu Ile  
85 90 95

Asp Val Asp Glu Lys Asn Gln Met Met Thr Thr Asn Val Trp Leu Lys  
100 105 110

Gln Glu Trp Ser Asp Tyr Lys Leu Arg Trp Asn Pro Ala Asp Phe Gly  
115 120 125

Asn Ile Thr Ser Leu Arg Val Pro Ser Glu Met Ile Trp Ile Pro Asp  
130 135 140

Ile Val Leu Tyr Asn Asn Ala Asp Gly Glu Phe Ala Val Thr His Met  
145 150 155 160

Thr Lys Ala His Leu Phe Ser Thr Gly Thr Val His Trp Val Pro Pro  
165 170 175

Ala Ile Tyr Lys Ser Ser Cys Ser Ile Asp Val Thr Phe Phe Pro Phe  
180 185 190

Asp Gln Gln Asn Cys Lys Met Lys Phe Gly Ser Trp Thr Tyr Asp Lys  
195 200 205

Ala Lys Ile Asp Leu Glu Gln Met Glu Gln Thr Val Asp Leu Lys Asp  
210 215 220



Tyr Trp Glu Ser Gly Glu Trp Ala Ile Val Asn Ala Thr Gly Thr Tyr  
225 230 235 240

Asn Ser Lys Lys Tyr Asp Cys Cys Ala Glu Ile Tyr Pro Asp Val Thr  
245 250 255

Tyr Ala Phe Val Ile Arg Arg Leu Pro Leu Phe Tyr Thr Ile Asn Leu  
260 265 270

Ile Ile Pro Cys Leu Leu Ile Ser Cys Leu Thr Val Leu Val Phe Tyr  
275 280 285

Leu Pro Ser Asp Cys Gly Glu Lys Ile Thr Leu Cys Ile Ser Val Leu  
290 295 300

Leu Ser Leu Thr Val Phe Leu Leu Leu Ile Thr Glu Ile Ile Pro Ser  
305 310 315 320

Thr Ser Leu Val Ile Pro Leu Ile Gly Glu Tyr Leu Leu Phe Thr Met  
325 330 335

Ile Phe Val Thr Leu Ser Ile Val Ile Thr Val Phe Val Leu Asn Val  
340 345 350

His His Arg Ser Pro Ser Thr His Thr Met Pro His Trp Val Arg Gly  
355 360 365

Ala Leu Leu Gly Cys Val Pro Arg Trp Leu Leu Met Asn Arg Pro Pro  
370 375 380

Pro Pro Val Glu Leu Cys His Pro Leu Arg Leu Lys Leu Ser Pro Ser  
385 390 395 400

Tyr His Trp Leu Glu Ser Asn Val Asp Ala Glu Glu Arg Glu Val Val  
405 410 415

Val Glu Glu Glu Asp Arg Trp Ala Cys Ala Gly His Val Ala Pro Ser  
420 425 430

Val Gly Thr Leu Cys Ser His Gly His Leu His Ser Gly Ala Ser Gly  
435 440 445

Pro Lys Ala Glu Ala Leu Leu Gln Glu Gly Glu Leu Leu Leu Ser Pro

450	455	460
His Met Gln Lys Ala Leu Glu Gly Val His Tyr Ile Ala Asp His Leu		
465	470	475 480
Arg Ser Glu Asp Ala Asp Ser Ser Val Lys Glu Asp Trp Lys Tyr Val		
	485	490 495
Ala Met Val Ile Asp Arg Ile Phe Leu Trp Leu Phe Ile Ile Val Cys		
	500	505 510
Phe Leu Gly Thr Ile Gly Leu Phe Leu Pro Pro Phe Leu Ala Gly Met		
	515	520 525

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<210> 103  
 <211> 1181  
 <212> DNA  
 <213> human organism

<400> 103

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<210> 104  
 <211> 268  
 <212> PRT  
 <213> human organism

<400> 104

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Gly Arg Ser Leu Val Ser Ser Pro Asp Ser Trp Gly Ser Thr Pro Ala  
 35 40 45

Asp Ser Pro Val Ala Ser Pro Ala Arg Pro Gly Thr Leu Arg Asp Pro  
 50 55 60

Arg Ala Pro Ser Val Gly Arg Arg Gly Ala Arg Ser Ser Arg Leu Gly  
 65 70 75 80

Ser Gly Gln Arg Gln Ser Ala Ser Glu Arg Glu Lys Leu Arg Met Arg  
 85 90 95

Thr Leu Ala Arg Ala Leu His Glu Leu Arg Arg Phe Leu Pro Pro Ser  
 100 105 110

Val Ala Pro Ala Gly Gln Ser Leu Thr Lys Ile Glu Thr Leu Arg Leu  
 115 120 125

Ala Ile Arg Tyr Ile Gly His Leu Ser Ala Val Leu Gly Leu Ser Glu  
 130 135 140

Glu Ser Leu Gln Arg Arg Cys Arg Gln Arg Gly Asp Ala Gly Ser Pro

145		150		155		160
Arg Gly Cys Pro Leu Cys Pro Asp Asp Cys Pro Ala Gln Met Gln Thr						
	165			170		175
Arg Thr Gln Ala Glu Gly Gln Gly Gln Gly Arg Gly Leu Gly Leu Val						
	180			185		190
Ser Ala Val Arg Ala Gly Ala Ser Trp Gly Ser Pro Pro Ala Cys Pro						
	195			200		205
Gly Ala Arg Ala Ala Pro Glu Pro Arg Asp Pro Pro Ala Leu Phe Ala						
	210			215		220
Glu Ala Ala Cys Pro Glu Gly Gln Ala Met Glu Pro Ser Pro Pro Ser						
	225			230		235
						240
Pro Leu Leu Pro Gly Asp Val Leu Ala Leu Leu Glu Thr Trp Met Pro						
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Leu Ser Pro Leu Glu Trp Leu Pro Glu Glu Pro Lys						
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 <211> 3810  
 <212> DNA  
 <213> human organism

<400> 105	
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<400> 106

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Trp Gly Val Val Arg Asn Arg Asp Thr Leu Ile Asn Pro Lys Gly Ser  
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Phe Pro Ala Arg Tyr Arg Trp Arg Gly Asp Pro Glu Asp Gly Val Gln  
35 40 45

Phe Pro Leu Asp Tyr Asn Tyr Ser Ala Phe Phe Leu Val Asp Asp Gly  
50 55 60

Thr His Gly Cys Leu Gly Gly Glu Asn Arg Phe Arg Leu Arg Leu Glu  
65 70 75 80

Ser Tyr Ile Ser Gln Gln Lys Thr Gly Val Gly Gly Thr Gly Ile Asp  
85 90 95

Ile Pro Val Leu Leu Leu Leu Ile Asp Gly Asp Glu Lys Met Leu Thr  
100 105 110

Arg Ile Glu Asn Ala Thr Gln Ala Gln Leu Pro Cys Leu Leu Val Ala  
115 120 125

Gly Ser Gly Gly Ala Ala Asp Cys Leu Ala Glu Thr Leu Glu Asp Thr  
130 135 140

Leu Ala Pro Gly Ser Gly Gly Ala Arg Gln Gly Glu Ala Arg Asp Arg  
145 150 155 160

Ile Arg Arg Phe Phe Pro Lys Gly Asp Leu Glu Val Leu Gln Ala Gln  
165 170 175

Val Glu Arg Ile Met Thr Arg Lys Glu Leu Leu Thr Val Tyr Ser Ser  
180 185 190

Glu Asp Gly Ser Glu Glu Phe Glu Thr Ile Val Leu Lys Ala Leu Val  
195 200 205

Lys Ala Cys Gly Ser Ser Glu Ala Ser Ala Tyr Leu Asp Glu Leu Arg  
210 215 220

Leu Ala Val Ala Trp Asn Arg Val Asp Ile Ala Gln Ser Glu Leu Phe  
225 230 235 240

Arg Gly Asp Ile Gln Trp Arg Ser Phe His Leu Glu Ala Ser Leu Met  
245 250 255

Asp Ala Leu Leu Asn Asp Arg Pro Glu Phe Val Arg Leu Leu Ile Ser  
260 265 270

His Gly Leu Ser Leu Gly His Phe Leu Thr Pro Met Arg Leu Ala Gln  
275 280 285

Leu Tyr Ser Ala Ala Pro Ser Asn Ser Leu Ile Arg Asn Leu Leu Asp  
290 295 300

Gln Ala Ser His Ser Ala Gly Thr Lys Ala Pro Ala Leu Lys Gly Gly  
305 310 315 320

Ala Ala Glu Leu Arg Pro Pro Asp Val Gly His Val Leu Arg Met Leu  
325 330 335

Leu Gly Lys Met Cys Ala Pro Arg Tyr Pro Ser Gly Gly Ala Trp Asp  
340 345 350

Pro His Pro Gly Gln Gly Phe Gly Glu Ser Met Tyr Leu Leu Ser Asp  
355 360 365

Lys Ala Thr Ser Pro Leu Ser Leu Asp Ala Gly Leu Gly Gln Ala Pro  
370 375 380

Trp Ser Asp Leu Leu Leu Trp Ala Leu Leu Leu Asn Arg Ala Gln Met  
385 390 395 400

Ala Met Tyr Phe Trp Glu Met Gly Ser Asn Ala Val Ser Ser Ala Leu  
405 410 415

Gly Ala Cys Leu Leu Leu Arg Val Met Ala Arg Leu Glu Pro Asp Ala  
420 425 430

Glu Glu Ala Ala Arg Arg Lys Asp Leu Ala Phe Lys Phe Glu Gly Met  
435 440 445



Gly Val Asp Leu Phe Gly Glu Cys Tyr Arg Ser Ser Glu Val Arg Ala  
450 455 460

Ala Arg Leu Leu Leu Arg Arg Cys Pro Leu Trp Gly Asp Ala Thr Cys  
465 470 475 480

Leu Gln Leu Ala Met Gln Ala Asp Ala Arg Ala Phe Phe Ala Gln Asp  
485 490 495

Gly Val Gln Ser Leu Leu Thr Gln Lys Trp Trp Gly Asp Met Ala Ser  
500 505 510

Thr Thr Pro Ile Trp Ala Leu Val Leu Ala Phe Phe Cys Pro Pro Leu  
515 520 525

Ile Tyr Thr Arg Leu Ile Thr Phe Arg Lys Ser Glu Glu Glu Pro Thr  
530 535 540

Arg Glu Glu Leu Glu Phe Asp Met Asp Ser Val Ile Asn Gly Glu Gly  
545 550 555 560

Pro Val Gly Thr Ala Asp Pro Ala Glu Lys Thr Pro Leu Gly Val Pro  
565 570 575

Arg Gln Ser Gly Arg Pro Gly Cys Cys Gly Gly Arg Cys Gly Gly Arg  
580 585 590

Arg Cys Leu Arg Arg Trp Phe His Phe Trp Gly Ala Pro Val Thr Ile  
595 600 605

Phe Met Gly Asn Val Val Ser Tyr Leu Leu Phe Leu Leu Leu Phe Ser  
610 615 620

Arg Val Leu Leu Val Asp Phe Gln Pro Ala Pro Pro Gly Ser Leu Glu  
625 630 635 640

Leu Leu Leu Tyr Phe Trp Ala Phe Thr Leu Leu Cys Glu Glu Leu Arg  
645 650 655

Gln Gly Leu Ser Gly Gly Gly Gly Ser Leu Ala Ser Gly Gly Pro Gly  
660 665 670

Pro Gly His Ala Ser Leu Ser Gln Arg Leu Arg Leu Tyr Leu Ala Asp

675	680	685
Ser Trp Asn Gln Cys Asp Leu Val Ala Leu Thr Cys Phe Leu Leu Gly		
690	695	700
Val Gly Cys Arg Leu Thr Pro Gly Leu Tyr His Leu Gly Arg Thr Val		
705	710	715
Leu Cys Ile Asp Phe Met Val Phe Thr Val Arg Leu Leu His Ile Phe		
	725	730
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Thr Val Asn Lys Gln Leu Gly Pro Lys Ile Val Ile Val Ser Lys Met		
	740	745
		750
Met Lys Asp Val Phe Phe Phe Leu Phe Phe Leu Gly Val Trp Leu Val		
	755	760
		765
Ala Tyr Gly Val Ala Thr Glu Gly Leu Leu Arg Pro Arg Asp Ser Asp		
	770	775
		780
Phe Pro Ser Ile Leu Arg Arg Val Phe Tyr Arg Pro Tyr Leu Gln Ile		
	785	790
		795
		800
Phe Gly Gln Ile Pro Gln Glu Asp Met Asp Val Ala Leu Met Glu His		
	805	810
		815
Ser Asn Cys Ser Ser Glu Pro Gly Phe Trp Ala His Pro Pro Gly Ala		
	820	825
		830
Gln Ala Gly Thr Cys Val Ser Gln Tyr Ala Asn Trp Leu Val Val Leu		
	835	840
		845
Leu Leu Val Ile Phe Leu Leu Val Ala Asn Ile Leu Leu Val Asn Leu		
	850	855
		860
Leu Ile Ala Met Phe Ser Tyr Thr Phe Gly Lys Val Gln Gly Asn Ser		
	865	870
		875
		880
Asp Leu Tyr Trp Lys Ala Gln Arg Tyr Arg Leu Ile Arg Glu Phe His		
	885	890
		895
Ser Arg Pro Ala Leu Ala Pro Pro Phe Ile Val Ile Ser His Leu Arg		
	900	905
		910

Leu Leu Leu Arg Gln Leu Cys Arg Arg Pro Arg Ser Pro Gln Pro Ser  
 915 920 925

Ser Pro Ala Leu Glu His Phe Arg Val Tyr Leu Ser Lys Glu Ala Glu  
 930 935 940

Arg Lys Leu Leu Thr Trp Glu Ser Val His Lys Glu Asn Phe Leu Leu  
 945 950 955 960

Ala Arg Ala Arg Asp Lys Arg Glu Ser Asp Ser Glu Arg Leu Glu Arg  
 965 970 975

Thr Ser Gln Lys Val Asp Leu Ala Leu Lys Gln Leu Gly His Ile Arg  
 980 985 990

Glu Tyr Glu Gln Arg Leu Lys Val Leu Glu Arg Glu Val Gln Gln Cys  
 995 1000 1005

Ser Arg Val Leu Gly Trp Val Thr  
 1010 1015

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 <211> 1378  
 <212> DNA  
 <213> human organism

<400> 107  
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 caccgccaag ttccgactcc ggttttcgcc ttgcaaagc ctaaggagga ggtaggaac 180  
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 tgcgcctggg ccgtgcgccc cggcaggcgc cagccatgtc gatgctgccg tcgtttggct 300  
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 <212> PRT  
 <213> human organism

<400> 108

Met Ser Met Leu Pro Ser Phe Gly Phe Thr Gln Glu Gln Val Ala Cys  
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Val Cys Glu Val Leu Gln Gln Gly Gly Asn Leu Glu Arg Leu Gly Arg  
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Phe Leu Trp Ser Leu Pro Ala Cys Asp His Leu His Lys Asn Glu Ser  
 35 40 45

Val Leu Lys Ala Lys Ala Val Val Ala Phe His Arg Gly Asn Phe Arg  
 50 55 60

Glu Leu Tyr Lys Ile Leu Glu Ser His Gln Phe Ser Pro His Asn His  
 65 70 75 80

Pro Lys Leu Gln Gln Leu Trp Leu Lys Ala His Tyr Val Glu Ala Glu  
 85 90 95

Lys Leu Arg Gly Arg Pro Leu Gly Ala Val Gly Lys Tyr Arg Val Arg  
100 105 110

Arg Lys Phe Pro Leu Pro Arg Thr Ile Trp Asp Gly Glu Glu Thr Ser  
115 120 125

Tyr Cys Phe Lys Glu Lys Ser Arg Gly Val Leu Arg Glu Trp Tyr Ala  
130 135 140

His Asn Pro Tyr Pro Ser Pro Arg Glu Lys Arg Glu Leu Ala Glu Ala  
145 150 155 160

Thr Gly Leu Thr Thr Thr Gln Val Ser Asn Trp Phe Lys Asn Arg Arg  
165 170 175

Gln Arg Asp Arg Ala Ala Glu Ala Lys Glu Arg Glu Asn Thr Glu Asn  
180 185 190

Asn Asn Ser Ser Ser Asn Lys Gln Asn Gln Leu Ser Pro Leu Glu Gly  
195 200 205

Gly Lys Pro Leu Met Ser Ser Ser Glu Glu Glu Phe Ser Pro Pro Gln  
210 215 220

Ser Pro Asp Gln Asn Ser Val Leu Leu Leu Gln Gly Asn Met Gly His  
225 230 235 240

Ala Arg Ser Ser Asn Tyr Ser Leu Pro Gly Leu Thr Ala Ser Gln Pro  
245 250 255

Ser His Gly Leu Gln Thr His Gln His Gln Leu Gln Asp Ser Leu Leu  
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Gly Pro Leu Thr Ser Ser Leu Val Asp Leu Gly Ser  
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<210> 109

<211> 3885

<212> DNA

<213> human organism

<400> 109

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tcacgttct	aaaatcaagt	gcacctacac	caactgtctc	caaaatgtga	actgacttht	3420
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<210> 110  
<211> 667  
<212> PRT  
<213> human organism

<400> 110

Met Lys Glu Lys Ser Lys Asn Ala Ala Lys Thr Arg Arg Glu Lys Glu  
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Asn Gly Glu Phe Tyr Glu Leu Ala Lys Leu Leu Pro Leu Pro Ser Ala  
20 25 30

Ile Thr Ser Gln Leu Asp Lys Ala Ser Ile Ile Arg Leu Thr Thr Ser  
35 40 45

Tyr Leu Lys Met Arg Ala Val Phe Pro Glu Gly Leu Gly Asp Ala Trp  
50 55 60

Gly Gln Pro Ser Arg Ala Gly Pro Leu Asp Gly Val Ala Lys Glu Leu  
65 70 75 80

Gly Ser His Leu Leu Gln Thr Leu Asp Gly Phe Val Phe Val Val Ala  
85 90 95

Ser Asp Gly Lys Ile Met Tyr Ile Ser Glu Thr Ala Ser Val His Leu  
100 105 110

Gly Leu Ser Gln Val Glu Leu Thr Gly Asn Ser Ile Tyr Glu Tyr Ile  
115 120 125

His Pro Ser Asp His Asp Glu Met Thr Ala Val Leu Thr Ala His Gln  
130 135 140



Pro Leu His His His Leu Leu Gln Glu Tyr Glu Ile Glu Arg Ser Phe  
145 150 155 160

Phe Leu Arg Met Lys Cys Val Leu Ala Lys Arg Asn Ala Gly Leu Thr  
165 170 175

Cys Ser Gly Tyr Lys Val Ile His Cys Ser Gly Tyr Leu Lys Ile Arg  
180 185 190

Gln Tyr Met Leu Asp Met Ser Leu Tyr Asp Ser Cys Tyr Gln Ile Val  
195 200 205

Gly Leu Val Ala Val Gly Gln Ser Leu Pro Pro Ser Ala Ile Thr Glu  
210 215 220

Ile Lys Leu Tyr Ser Asn Met Phe Met Phe Arg Ala Ser Leu Asp Leu  
225 230 235 240

Lys Leu Ile Phe Leu Asp Ser Arg Val Thr Glu Val Thr Gly Tyr Glu  
245 250 255

Pro Gln Asp Leu Ile Glu Lys Thr Leu Tyr His His Val His Gly Cys  
260 265 270

Asp Val Phe His Leu Arg Tyr Ala His His Leu Leu Leu Val Lys Gly  
275 280 285

Gln Val Thr Thr Lys Tyr Tyr Arg Leu Leu Ser Lys Arg Gly Gly Trp  
290 295 300

Val Trp Val Gln Ser Tyr Ala Thr Val Val His Asn Ser Arg Ser Ser  
305 310 315 320

Arg Pro His Cys Ile Val Ser Val Asn Tyr Val Leu Thr Glu Ile Glu  
325 330 335

Tyr Lys Glu Leu Gln Leu Ser Leu Glu Gln Val Ser Thr Ala Lys Ser  
340 345 350

Gln Asp Ser Trp Arg Thr Ala Leu Ser Thr Ser Gln Glu Thr Arg Lys  
355 360 365

Leu Val Lys Pro Lys Asn Thr Lys Met Lys Thr Lys Leu Arg Thr Asn

370

375

380

Pro Tyr Pro Pro Gln Gln Tyr Ser Ser Phe Gln Met Asp Lys Leu Glu  
 385 390 395 400

Cys Gly Gln Leu Gly Asn Trp Arg Ala Ser Pro Pro Ala Ser Ala Ala  
 405 410 415

Ala Pro Pro Glu Leu Gln Pro His Ser Glu Ser Ser Asp Leu Leu Tyr  
 420 425 430

Thr Pro Ser Tyr Ser Leu Pro Phe Ser Tyr His Tyr Gly His Phe Pro  
 435 440 445

Leu Asp Ser His Val Phe Ser Ser Lys Lys Pro Met Leu Pro Ala Lys  
 450 455 460

Phe Gly Gln Pro Gln Gly Ser Pro Cys Glu Val Ala Arg Phe Phe Leu  
 465 470 475 480

Ser Thr Leu Pro Ala Ser Gly Glu Cys Gln Trp His Tyr Ala Asn Pro  
 485 490 495

Leu Val Pro Ser Ser Ser Ser Pro Ala Lys Asn Pro Pro Glu Pro Pro  
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Ala Asn Thr Ala Arg His Ser Leu Val Pro Ser Tyr Glu Ala Pro Ala  
 515 520 525

Ala Ala Val Arg Arg Phe Gly Glu Asp Thr Ala Pro Pro Ser Phe Pro  
 530 535 540

Ser Cys Gly His Tyr Arg Glu Glu Pro Ala Leu Gly Pro Ala Lys Ala  
 545 550 555 560

Ala Arg Gln Ala Ala Arg Asp Gly Ala Arg Leu Ala Leu Ala Arg Ala  
 565 570 575

Ala Pro Glu Cys Cys Ala Pro Pro Thr Pro Glu Ala Pro Gly Ala Pro  
 580 585 590

Ala Gln Leu Pro Phe Val Leu Leu Asn Tyr His Arg Val Leu Ala Arg  
 595 600 605

Arg Gly Pro Leu Gly Gly Ala Ala Pro Ala Ala Ser Gly Leu Ala Cys  
610 615 620

Ala Pro Gly Gly Pro Glu Ala Ala Thr Gly Ala Leu Arg Leu Arg His  
625 630 635 640

Pro Ser Pro Ala Ala Thr Ser Pro Pro Gly Ala Pro Leu Pro His Tyr  
645 650 655

Leu Gly Ala Ser Val Ile Ile Thr Asn Gly Arg  
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<210> 112  
<211> 417  
<212> PRT  
<213> human organism

<400> 112

Met Asn Gly Arg Cys Ile Cys Pro Ser Leu Pro Tyr Ser Pro Val Ser  
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Ser Pro Gln Ser Ser Pro Arg Leu Pro Arg Arg Pro Thr Val Glu Ser  
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His His Val Ser Ile Thr Gly Met Gln Asp Cys Val Gln Leu Asn Gln  
35 40 45

Tyr Thr Leu Lys Asp Glu Ile Gly Lys Gly Ser Tyr Gly Val Val Lys  
50 55 60

Leu Ala Tyr Asn Glu Asn Asp Asn Thr Tyr Tyr Ala Met Lys Val Leu  
65 70 75 80

Ser Lys Lys Lys Leu Ile Arg Gln Ala Gly Phe Pro Arg Arg Pro Pro  
85 90 95

Pro Arg Gly Thr Arg Pro Ala Pro Gly Gly Cys Ile Gln Pro Arg Gly  
100 105 110

Pro Ile Glu Gln Val Tyr Gln Glu Ile Ala Ile Leu Lys Lys Leu Asp  
115 120 125

His Pro Asn Val Val Lys Leu Val Glu Val Leu Asp Asp Pro Asn Glu  
130 135 140

Asp His Leu Tyr Met Val Phe Glu Leu Val Asn Gln Gly Pro Val Met  
145 150 155 160

Glu Val Pro Thr Leu Lys Pro Leu Ser Glu Asp Gln Ala Arg Phe Tyr  
165 170 175

Phe Gln Asp Leu Ile Lys Gly Ile Glu Tyr Leu His Tyr Gln Lys Ile  
180 185 190

Ile His Arg Asp Ile Lys Pro Ser Asn Leu Leu Val Gly Glu Asp Gly  
195 200 205

His Ile Lys Ile Ala Asp Phe Gly Val Ser Asn Glu Phe Lys Gly Ser  
210 215 220

Asp Ala Leu Leu Ser Asn Thr Val Gly Thr Pro Ala Phe Met Ala Pro  
225 230 235 240

Glu Ser Leu Ser Glu Thr Arg Lys Ile Phe Ser Gly Lys Ala Leu Asp  
245 250 255

Val Trp Ala Met Gly Val Thr Leu Tyr Cys Phe Val Phe Gly Gln Cys  
260 265 270

Pro Phe Met Asp Glu Arg Ile Met Cys Leu His Ser Lys Ile Lys Ser  
275 280 285

Gln Ala Leu Glu Phe Pro Asp Gln Pro Asp Ile Ala Glu Asp Leu Lys  
290 295 300

Asp Leu Ile Thr Arg Met Leu Asp Lys Asn Pro Glu Ser Arg Ile Val

305

310

315

320

Val Pro Glu Ile Lys Leu His Pro Trp Val Thr Arg His Gly Ala Glu  
 325 330 335

Pro Leu Pro Ser Glu Asp Glu Asn Cys Thr Leu Val Glu Val Thr Glu  
 340 345 350

Glu Glu Val Glu Asn Ser Val Lys His Ile Pro Ser Leu Ala Thr Val  
 355 360 365

Ile Leu Val Lys Thr Met Ile Arg Lys Arg Ser Phe Gly Asn Pro Phe  
 370 375 380

Glu Gly Ser Arg Arg Glu Glu Arg Ser Leu Ser Ala Pro Gly Asn Leu  
 385 390 395 400

Leu Thr Lys Lys Pro Thr Arg Glu Cys Glu Ser Leu Ser Glu Leu Lys  
 405 410 415

Thr

<210> 113  
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 <212> DNA  
 <213> human organism

<400> 113  
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<210> 114  
 <211> 142  
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<213> human organism

<400> 114

Met Lys Pro Leu Ile Trp Thr Trp Ser Asp Val Glu Gly Gln Arg Pro  
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Ala Leu Leu Ile Cys Thr Ala Ala Ala Gly Pro Thr Gln Gly Val Lys  
20 25 30

Gly Tyr Gly Lys Pro Phe Glu Pro Arg Ser Val Lys Asn Ile His Ser  
35 40 45

Thr Pro Ala Tyr Pro Asp Ala Thr Met His Arg Gln Leu Leu Ala Pro  
50 55 60

Val Glu Gly Arg Met Ala Glu Thr Leu Asn Gln Lys Leu His Val Ala  
65 70 75 80

Asn Val Leu Glu Asp Asp Pro Gly Tyr Leu Pro His Val Tyr Ser Glu  
85 90 95

Glu Gly Glu Cys Gly Gly Ala Pro Ser Leu Ser Ser Leu Ala Ser Leu  
100 105 110

Glu Gln Glu Leu Gln Pro Asp Leu Leu Asp Ser Leu Gly Ser Lys Ala  
115 120 125

Thr Pro Phe Glu Glu Ile Tyr Ser Glu Ser Gly Val Pro Ser  
130 135 140

<210> 115

<211> 1270

<212> DNA

<213> human organism

<400> 115

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<400> 116

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Leu Thr Ser His Pro Ala Ala Pro Thr Leu Met Pro Ala Val Asn Tyr  
 35 40 45

Ala Pro Leu Asp Leu Pro Gly Ser Ala Glu Pro Pro Lys Gln Cys His  
 50 55 60



Pro Cys Pro Gly Val Pro Gln Gly Thr Ser Pro Ala Pro Val Pro Tyr  
65 70 75 80

Gly Tyr Phe Gly Gly Gly Tyr Tyr Ser Cys Arg Val Ser Arg Ser Ser  
85 90 95

Leu Lys Pro Cys Ala Gln Ala Ala Thr Leu Ala Ala Tyr Pro Ala Glu  
100 105 110

Thr Pro Thr Ala Gly Glu Glu Tyr Pro Ser Arg Pro Thr Glu Phe Ala  
115 120 125

Phe Tyr Pro Gly Tyr Pro Gly Thr Tyr His Ala Met Ala Ser Tyr Leu  
130 135 140

Asp Val Ser Val Val Gln Thr Leu Gly Ala Pro Gly Glu Pro Arg His  
145 150 155 160

Asp Ser Leu Leu Pro Val Asp Ser Tyr Gln Ser Trp Ala Leu Ala Gly  
165 170 175

Gly Trp Asn Ser Gln Met Cys Cys Gln Gly Glu Gln Asn Pro Pro Gly  
180 185 190

Pro Phe Trp Lys Ala Ala Phe Ala Asp Ser Ser Gly Gln His Pro Pro  
195 200 205

Asp Ala Cys Ala Phe Arg Arg Gly Arg Lys Lys Arg Ile Pro Tyr Ser  
210 215 220

Lys Gly Gln Leu Arg Glu Leu Glu Arg Glu Tyr Ala Ala Asn Lys Phe  
225 230 235 240

Ile Thr Lys Asp Lys Arg Arg Lys Ile Ser Ala Ala Thr Ser Leu Ser  
245 250 255

Glu Arg Gln Ile Thr Ile Trp Phe Gln Asn Arg Arg Val Lys Glu Lys  
260 265 270

Lys Val Leu Ala Lys Val Lys Asn Ser Ala Thr Pro  
275 280

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<211> 2856  
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<211> 541
<212> PRT
<213> human organism

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<400> 118
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20

25

30

Ala Ala Ala Gly Gly Tyr Cys Gly Ser Arg Asp Gln Val Arg Arg Cys  
 35 40 45

Leu Arg Ala Asn Leu Leu Val Leu Leu Thr Val Val Ala Val Val Ala  
 50 55 60

Gly Val Ala Leu Gly Leu Gly Val Ser Gly Ala Gly Gly Ala Leu Ala  
 65 70 75 80

Leu Gly Pro Glu Arg Leu Ser Ala Phe Val Phe Pro Gly Glu Leu Leu  
 85 90 95

Leu Arg Leu Leu Arg Met Ile Ile Leu Pro Leu Val Val Cys Ser Leu  
 100 105 110

Ile Gly Gly Ala Ala Ser Leu Asp Pro Gly Ala Leu Gly Arg Leu Gly  
 115 120 125

Ala Trp Ala Leu Leu Phe Phe Leu Val Thr Thr Leu Leu Ala Ser Ala  
 130 135 140

Leu Gly Val Gly Leu Ala Leu Ala Leu Gln Pro Gly Ala Ala Ser Ala  
 145 150 155 160

Ala Ile Asn Ala Ser Val Gly Ala Ala Gly Ser Ala Glu Asn Ala Pro  
 165 170 175

Ser Lys Glu Val Leu Asp Ser Phe Leu Asp Leu Ala Arg Asn Ile Phe  
 180 185 190

Pro Ser Asn Leu Val Ser Ala Ala Phe Arg Ser Tyr Ser Thr Thr Tyr  
 195 200 205

Glu Glu Arg Asn Ile Thr Gly Thr Arg Val Lys Val Pro Val Gly Gln  
 210 215 220

Glu Val Glu Gly Met Asn Ile Leu Gly Leu Val Val Phe Ala Ile Val  
 225 230 235 240

Phe Gly Val Ala Leu Arg Lys Leu Gly Pro Glu Gly Glu Leu Leu Ile  
 245 250 255

Arg Phe Phe Asn Ser Phe Asn Glu Ala Thr Met Val Leu Val Ser Trp  
260 265 270

Ile Met Trp Tyr Ala Pro Val Gly Ile Met Phe Leu Val Ala Gly Lys  
275 280 285

Ile Val Glu Met Glu Asp Val Gly Leu Leu Phe Ala Arg Leu Gly Lys  
290 295 300

Tyr Ile Leu Cys Cys Leu Leu Gly His Ala Ile His Gly Leu Leu Val  
305 310 315 320

Leu Pro Leu Ile Tyr Phe Leu Phe Thr Arg Lys Asn Pro Tyr Arg Phe  
325 330 335

Leu Trp Gly Ile Val Thr Pro Leu Ala Thr Ala Phe Gly Thr Ser Ser  
340 345 350

Ser Ser Ala Thr Leu Pro Leu Met Met Lys Cys Val Glu Glu Asn Asn  
355 360 365

Gly Val Ala Lys His Ile Ser Arg Phe Ile Leu Pro Ile Gly Ala Thr  
370 375 380

Val Asn Met Asp Gly Ala Ala Leu Phe Gln Cys Val Ala Ala Val Phe  
385 390 395 400

Ile Ala Gln Leu Ser Gln Gln Ser Leu Asp Phe Val Lys Ile Ile Thr  
405 410 415

Ile Leu Val Thr Ala Thr Ala Ser Ser Val Gly Ala Ala Gly Ile Pro  
420 425 430

Ala Gly Gly Val Leu Thr Leu Ala Ile Ile Leu Glu Ala Val Asn Leu  
435 440 445

Pro Val Asp His Ile Ser Leu Ile Leu Ala Val Asp Trp Leu Val Asp  
450 455 460

Arg Ser Cys Thr Val Leu Asn Val Glu Gly Asp Ala Leu Gly Ala Gly  
465 470 475 480

Leu Leu Gln Asn Tyr Val Asp Arg Thr Glu Ser Arg Ser Thr Glu Pro  
485 490 495

Glu Leu Ile Gln Val Lys Ser Glu Leu Pro Leu Asp Pro Leu Pro Val  
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Pro Thr Glu Glu Gly Asn Pro Leu Leu Lys His Tyr Arg Gly Pro Ala  
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Gly Asp Ala Thr Val Ala Ser Glu Lys Glu Ser Val Met  
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<211> 1993  
<212> DNA  
<213> human organism

<400> 119  
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<400> 120

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Leu Ser Cys Cys Ser Asp Ala Asp Pro Ser Thr Lys Asp Phe Leu Leu  
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Gln Gln Thr Met Leu Arg Val Lys Asp Pro Lys Lys Ser Leu Asp Phe  
 35 40 45

Tyr Thr Arg Val Leu Gly Met Thr Leu Ile Gln Lys Cys Asp Phe Pro  
 50 55 60

Ile Met Lys Phe Ser Leu Tyr Phe Leu Ala Tyr Glu Asp Lys Asn Asp  
65 70 75 80

Ile Pro Lys Glu Lys Asp Glu Lys Ile Ala Trp Ala Leu Ser Arg Lys  
85 90 95

Ala Thr Leu Glu Leu Thr His Asn Trp Gly Thr Glu Asp Asp Ala Thr  
100 105 110

Gln Ser Tyr His Asn Gly Asn Ser Asp Pro Arg Gly Phe Gly His Ile  
115 120 125

Gly Ile Ala Val Pro Asp Val Tyr Ser Ala Cys Lys Arg Phe Glu Glu  
130 135 140

Leu Gly Val Lys Phe Val Lys Lys Pro Asp Asp Gly Lys Met Lys Gly  
145 150 155 160

Leu Ala Phe Ile Gln Asp Pro Asp Gly Tyr Trp Ile Glu Ile Leu Asn  
165 170 175

Pro Asn Lys Met Ala Thr Leu Met  
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aattttgact acatgtttta actgcttatac attggcaaca gcagtgttgg caagacctcc 180  
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<210> 122
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<212> PRT
<213> human organism

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<400> 122

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Met Ala Ser Val Thr Asp Gly Lys His Gly Val Lys Asp Ala Ser Asp
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Gln Asn Phe Asp Tyr Met Phe Lys Leu Leu Ile Ile Gly Asn Ser Ser
          20          25         30

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Val Gly Lys Thr Ser Phe Leu Leu Arg Tyr Ala Asp Asp Thr Phe Thr
          35          40         45

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Pro Ala Phe Val Ser Thr Val Gly Ile Asp Phe Lys Val Lys Thr Val
          50          55         60

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Tyr Arg His Glu Lys Arg Val Lys Leu Gln Ile Trp Asp Thr Ala Gly
65          70          75         80

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Gln Glu Arg Tyr Arg Thr Ile Thr Thr Ala Tyr Tyr Arg Gly Ala Met
          85          90         95

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Gly Phe Ile Leu Met Tyr Asp Ile Thr Asn Glu Glu Ser Phe Asn Ala
          100         105        110

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Val Gln Asp Trp Ala Thr Gln Ile Lys Thr Tyr Ser Trp Asp Asn Ala
          115         120        125

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Gln Val Ile Leu Val Gly Asn Lys Cys Asp Met Glu Glu Glu Arg Val
          130         135        140

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Val Pro Thr Glu Lys Gly Gln Leu Leu Ala Glu Gln Leu Gly Phe Asp
145          150         155        160

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Phe Phe Glu Ala Ser Ala Lys Glu Asn Ile Ser Val Arg Gln Ala Phe  
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Glu Arg Leu Val Asp Ala Ile Cys Asp Lys Met Ser Asp Ser Leu Asp  
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Thr Pro Pro Leu Leu Gln Gln Asn Cys Ser Cys  
210 215

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<400> 124

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Ser Cys Val Gln Asp Gly Gln Arg Tyr Asn Asp Lys Asp Val Trp Lys  
 35 40 45

Pro Glu Pro Cys Arg Ile Cys Val Cys Asp Thr Gly Thr Val Leu Cys  
 50 55 60

Asp Asp Ile Ile Cys Glu Asp Val Lys Asp Cys Leu Ser Pro Glu Ile  
 65 70 75 80

Pro Phe Gly Glu Cys Cys Pro Ile Cys Pro Thr Asp Leu Ala Thr Ala  
 85 90 95

Ser Gly Gln Pro Gly Pro Lys Gly Gln Lys Gly Glu Pro Gly Asp Ile  
 100 105 110

Lys Asp Ile Val Gly Pro Lys Gly Pro Pro Gly Pro Gln Gly Pro Ala  
115 120 125

Gly Glu Gln Gly Pro Arg Gly Asp Arg Gly Asp Lys Gly Glu Lys Gly  
130 135 140

Ala Pro Gly Pro Arg Gly Arg Asp Gly Glu Pro Gly Thr Pro Gly Asn  
145 150 155 160

Pro Gly Pro Pro Gly Pro Pro Gly Pro Pro Gly Pro Pro Gly Leu Gly  
165 170 175

Gly Asn Phe Ala Ala Gln Met Ala Gly Gly Phe Asp Glu Lys Ala Gly  
180 185 190

Gly Ala Gln Leu Gly Val Met Gln Gly Pro Met Gly Pro Met Gly Pro  
195 200 205

Arg Gly Pro Pro Gly Pro Ala Gly Ala Pro Gly Pro Gln Gly Phe Gln  
210 215 220

Gly Asn Pro Gly Glu Pro Gly Glu Pro Gly Val Ser Gly Pro Met Gly  
225 230 235 240

Pro Arg Gly Pro Pro Gly Pro Pro Gly Lys Pro Gly Asp Asp Gly Glu  
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Ala Gly Lys Pro Gly Lys Ala Gly Glu Arg Gly Pro Pro Gly Pro Gln  
260 265 270

Gly Ala Arg Gly Phe Pro Gly Thr Pro Gly Leu Pro Gly Val Lys Gly  
275 280 285

His Arg Gly Tyr Pro Gly Leu Asp Gly Ala Lys Gly Glu Ala Gly Ala  
290 295 300

Pro Gly Val Lys Gly Glu Ser Gly Ser Pro Gly Glu Asn Gly Ser Pro  
305 310 315 320

Gly Pro Met Gly Pro Arg Gly Leu Pro Gly Glu Arg Gly Arg Thr Gly  
325 330 335

Pro Ala Gly Ala Ala Gly Ala Arg Gly Asn Asp Gly Gln Pro Gly Pro  
340 345 350

Ala Gly Pro Pro Gly Pro Val Gly Pro Ala Gly Gly Pro Gly Phe Pro  
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Gly Ala Pro Gly Ala Lys Gly Glu Ala Gly Pro Thr Gly Ala Arg Gly  
370 375 380

Pro Glu Gly Ala Gln Gly Pro Arg Gly Glu Pro Gly Thr Pro Gly Ser  
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Pro Gly Pro Ala Gly Ala Ser Gly Asn Pro Gly Thr Asp Gly Ile Pro  
405 410 415

Gly Ala Lys Gly Ser Ala Gly Ala Pro Gly Ile Ala Gly Ala Pro Gly  
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Phe Pro Gly Pro Arg Gly Pro Pro Gly Pro Gln Gly Ala Thr Gly Pro  
435 440 445

Leu Gly Pro Lys Gly Gln Thr Gly Glu Pro Gly Ile Ala Gly Phe Lys  
450 455 460

Gly Glu Gln Gly Pro Lys Gly Glu Pro Gly Pro Ala Gly Pro Gln Gly  
465 470 475 480

Ala Pro Gly Pro Ala Gly Glu Glu Gly Lys Arg Gly Ala Arg Gly Glu  
485 490 495

Pro Gly Gly Val Gly Pro Ile Gly Pro Pro Gly Glu Arg Gly Ala Pro  
500 505 510

Gly Asn Arg Gly Phe Pro Gly Gln Asp Gly Leu Ala Gly Pro Lys Gly  
515 520 525

Ala Pro Gly Glu Arg Gly Pro Ser Gly Leu Ala Gly Pro Lys Gly Ala  
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Asn Gly Asp Pro Gly Arg Pro Gly Glu Pro Gly Leu Pro Gly Ala Arg  
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Gly Leu Thr Gly Arg Pro Gly Asp Ala Gly Pro Gln Gly Lys Val Gly

565

570

575

Pro Ser Gly Ala Pro Gly Glu Asp Gly Arg Pro Gly Pro Pro Gly Pro  
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Gln Gly Ala Arg Gly Gln Pro Gly Val Met Gly Phe Pro Gly Pro Lys  
 595 600 605

Gly Ala Asn Gly Glu Pro Gly Lys Ala Gly Glu Lys Gly Leu Pro Gly  
 610 615 620

Ala Pro Gly Leu Arg Gly Leu Pro Gly Lys Asp Gly Glu Thr Gly Ala  
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Ala Gly Pro Pro Gly Pro Ala Gly Pro Ala Gly Glu Arg Gly Glu Gln  
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Gly Ala Pro Gly Pro Ser Gly Phe Gln Gly Leu Pro Gly Pro Pro Gly  
 660 665 670

Pro Pro Gly Glu Gly Gly Lys Pro Gly Asp Gln Gly Val Pro Gly Glu  
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Ala Gly Ala Pro Gly Leu Val Gly Pro Arg Gly Glu Arg Gly Phe Pro  
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Gly Glu Arg Gly Ser Pro Gly Ala Gln Gly Leu Gln Gly Pro Arg Gly  
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Leu Pro Gly Thr Pro Gly Thr Asp Gly Pro Lys Gly Ala Ser Gly Pro  
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Ala Gly Pro Pro Gly Ala Gln Gly Pro Pro Gly Leu Gln Gly Met Pro  
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Gly Glu Arg Gly Ala Ala Gly Ile Ala Gly Pro Lys Gly Asp Arg Gly  
 755 760 765

Asp Val Gly Glu Lys Gly Pro Glu Gly Ala Pro Gly Lys Asp Gly Gly  
 770 775 780

Arg Gly Leu Thr Gly Pro Ile Gly Pro Pro Gly Pro Ala Gly Ala Asn  
 785 790 795 800



Gly Glu Lys Gly Glu Val Gly Pro Pro Gly Pro Ala Gly Ser Ala Gly  
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Ala Arg Gly Ala Pro Gly Glu Arg Gly Glu Thr Gly Pro Pro Gly Pro  
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Ala Gly Phe Ala Gly Pro Pro Gly Ala Asp Gly Gln Pro Gly Ala Lys  
835 840 845

Gly Glu Gln Gly Glu Ala Gly Gln Lys Gly Asp Ala Gly Ala Pro Gly  
850 855 860

Pro Gln Gly Pro Ser Gly Ala Pro Gly Pro Gln Gly Pro Thr Gly Val  
865 870 875 880

Thr Gly Pro Lys Gly Ala Arg Gly Ala Gln Gly Pro Pro Gly Ala Thr  
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Gly Phe Pro Gly Ala Ala Gly Arg Val Gly Pro Pro Gly Ser Asn Gly  
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Asn Pro Gly Pro Pro Gly Pro Pro Gly Pro Ser Gly Lys Asp Gly Pro  
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Lys Gly Ala Arg Gly Asp Ser Gly Pro Pro Gly Arg Ala Gly Glu Pro  
930 935 940

Gly Leu Gln Gly Pro Ala Gly Pro Pro Gly Glu Lys Gly Glu Pro Gly  
945 950 955 960

Asp Asp Gly Pro Ser Gly Ala Glu Gly Pro Pro Gly Pro Gln Gly Leu  
965 970 975

Ala Gly Gln Arg Gly Ile Val Gly Leu Pro Gly Gln Arg Gly Glu Arg  
980 985 990

Gly Phe Pro Gly Leu Pro Gly Pro Ser Gly Glu Pro Gly Lys Gln Gly  
995 1000 1005

Ala Pro Gly Ala Ser Gly Asp Arg Gly Pro Pro Gly Pro Val Gly  
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Pro Pro Gly Leu Thr Gly Pro Ala Gly Glu Pro Gly Arg Glu Gly  
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Ser Pro Gly Ala Asp Gly Pro Pro Gly Arg Asp Gly Ala Ala Gly  
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Val Lys Gly Asp Arg Gly Glu Thr Gly Ala Val Gly Ala Pro Gly  
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Ala Pro Gly Pro Pro Gly Ser Pro Gly Pro Ala Gly Pro Thr Gly  
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Lys Gln Gly Asp Arg Gly Glu Ala Gly Ala Gln Gly Pro Met Gly  
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Pro Ser Gly Pro Ala Gly Ala Arg Gly Ile Gln Gly Pro Gln Gly  
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Pro Arg Gly Asp Lys Gly Glu Ala Gly Glu Pro Gly Glu Arg Gly  
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Leu Lys Gly His Arg Gly Phe Thr Gly Leu Gln Gly Leu Pro Gly  
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Pro Pro Gly Pro Ser Gly Asp Gln Gly Ala Ser Gly Pro Ala Gly  
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Pro Ser Gly Pro Arg Gly Pro Pro Gly Pro Val Gly Pro Ser Gly  
1160 1165 1170

Lys Asp Gly Ala Asn Gly Ile Pro Gly Pro Ile Gly Pro Pro Gly  
1175 1180 1185

Pro Arg Gly Arg Ser Gly Glu Thr Gly Pro Ala Gly Pro Pro Gly  
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Asn Pro Gly Pro Pro Gly Pro Pro Gly Pro Pro Gly Pro Gly Ile  
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Asp Met Ser Ala Phe Ala Gly Leu Gly Pro Arg Glu Lys Gly Pro  
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Asp Pro Leu Gln Tyr Met Arg Ala Asp Gln Ala Ala Gly Gly Leu  
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Asn Gln Ile Glu Ser Ile Arg Ser Pro Glu Gly Ser Arg Lys Asn  
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Pro Ala Arg Thr Cys Arg Asp Leu Lys Leu Cys His Pro Glu Trp  
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Lys Ser Gly Asp Tyr Trp Ile Asp Pro Asn Gln Gly Cys Thr Leu  
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Asp Ala Met Lys Val Phe Cys Asn Met Glu Thr Gly Glu Thr Cys  
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Val Tyr Pro Asn Pro Ala Asn Val Pro Lys Lys Asn Trp Trp Ser  
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Glu Gly Ser Gln Asn Ile Thr Tyr His Cys Lys Asn Ser Ile Ala  
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Gln Gly Ser Asn Asp Val Glu Ile Arg Ala Glu Gly Asn Ser Arg  
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Phe Thr Tyr Thr Ala Leu Lys Asp Gly Cys Thr Lys His Thr Gly  
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Lys Trp Gly Lys Thr Val Ile Glu Tyr Arg Ser Gln Lys Thr Ser

1445

1450

1455

Arg Leu Pro Ile Ile Asp Ile Ala Pro Met Asp Ile Gly Gly Pro  
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Glu Gln Glu Phe Gly Val Asp Ile Gly Pro Val Cys Phe Leu  
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 <212> DNA  
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<400> 126

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Met Lys Ser Ser Ala Trp Val Asn Lys Ile Gln Val Leu Met Ala Ala  
 35 40 45

Ala Ser Phe Gly Gln Thr Lys Ile Pro Arg Gly Asn Gly Pro Tyr Ser  
 50 55 60

Val Gly Cys Thr Asp Leu Met Phe Asp His Thr Asn Lys Gly Thr Phe  
 65 70 75 80

Leu Arg Leu Tyr Tyr Pro Ser Gln Asp Asn Asp Arg Leu Asp Thr Leu  
 85 90 95

Trp Ile Pro Asn Lys Glu Tyr Phe Trp Gly Leu Ser Lys Phe Leu Gly  
 100 105 110

Thr His Trp Leu Met Gly Asn Ile Leu Arg Leu Leu Phe Gly Ser Met  
 115 120 125

Thr Thr Pro Ala Asn Trp Asn Ser Pro Leu Arg Pro Gly Glu Lys Tyr  
 130 135 140

Pro Leu Val Val Phe Ser His Gly Leu Gly Ala Phe Arg Thr Leu Tyr

145	150	155	160
Ser Ala Ile Gly Ile Asp Leu Ala Ser His Gly Phe Ile Val Ala Ala	165	170	175
Val Glu His Arg Asp Arg Ser Ala Ser Ala Thr Tyr Tyr Phe Lys Asp	180	185	190
Gln Ser Ala Ala Glu Ile Gly Asp Lys Ser Trp Leu Tyr Leu Arg Thr	195	200	205
Leu Lys Gln Glu Glu Glu Thr His Ile Arg Asn Glu Gln Val Arg Gln	210	215	220
Arg Ala Lys Glu Cys Ser Gln Ala Leu Ser Leu Ile Leu Asp Ile Asp	225	230	235
His Gly Lys Pro Val Lys Asn Ala Leu Asp Leu Lys Phe Asp Met Glu	245	250	255
Gln Leu Lys Asp Ser Ile Asp Arg Glu Lys Ile Ala Val Ile Gly His	260	265	270
Ser Phe Gly Gly Ala Thr Val Ile Gln Thr Leu Ser Glu Asp Gln Arg	275	280	285
Phe Arg Cys Gly Ile Ala Leu Asp Ala Trp Met Phe Pro Leu Gly Asp	290	295	300
Glu Val Tyr Ser Arg Ile Pro Gln Pro Leu Phe Phe Ile Asn Ser Glu	305	310	315
Tyr Phe Gln Tyr Pro Ala Asn Ile Ile Lys Met Lys Lys Cys Tyr Ser	325	330	335
Pro Asp Lys Glu Arg Lys Met Ile Thr Ile Arg Gly Ser Val His Gln	340	345	350
Asn Phe Ala Asp Phe Thr Phe Ala Thr Gly Lys Ile Ile Gly His Met	355	360	365
Leu Lys Leu Lys Gly Asp Ile Asp Ser Asn Val Ala Ile Asp Leu Ser	370	375	380

Asn Lys Ala Ser Leu Ala Phe Leu Gln Lys His Leu Gly Leu His Lys  
 385 390 395 400

Asp Phe Asp Gln Trp Asp Cys Leu Ile Glu Gly Asp Asp Glu Asn Leu  
 405 410 415

Ile Pro Gly Thr Asn Ile Asn Thr Thr Asn Gln His Ile Met Leu Gln  
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Asn Ser Ser Gly Ile Glu Lys Tyr Asn  
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Pro	Lys	Cys	Ala	Asp	Phe	Gln	Ser	Ala	Asn	Leu	Phe	Glu	Gly	Thr	Asp
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Leu	Lys	Val	Gln	Phe	Leu	Leu	Phe	Val	Pro	Ser	Asn	Pro	Ser	Cys	Gly
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Gln	Leu	Val	Glu	Gly	Ser	Ser	Asp	Leu	Gln	Asn	Ser	Gly	Phe	Asn	Ala
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Thr	Leu	Gly	Thr	Lys	Leu	Ile	Ile	His	Gly	Phe	Arg	Val	Leu	Gly	Thr
				85					90					95	



Lys Pro Ser Trp Ile Asp Thr Phe Ile Arg Thr Leu Leu Arg Ala Thr  
100 105 110

Asn Ala Asn Val Ile Ala Val Asp Trp Ile Tyr Gly Ser Thr Gly Val  
115 120 125

Tyr Phe Ser Ala Val Lys Asn Val Ile Lys Leu Ser Leu Glu Ile Ser  
130 135 140

Leu Phe Leu Asn Lys Leu Leu Val Leu Gly Val Ser Glu Ser Ser Ile  
145 150 155 160

His Ile Ile Gly Val Ser Leu Gly Ala His Val Gly Gly Met Val Gly  
165 170 175

Gln Leu Phe Gly Gly Gln Leu Gly Gln Ile Thr Gly Leu Asp Pro Ala  
180 185 190

Gly Pro Glu Tyr Thr Arg Ala Ser Val Glu Glu Arg Leu Asp Ala Gly  
195 200 205

Asp Ala Leu Phe Val Glu Ala Ile His Thr Asp Thr Asp Asn Leu Gly  
210 215 220

Ile Arg Ile Pro Val Gly His Val Asp Tyr Phe Val Asn Gly Gly Gln  
225 230 235 240

Asp Gln Pro Gly Cys Pro Thr Phe Phe Tyr Ala Gly Tyr Ser Tyr Leu  
245 250 255

Ile Cys Asp His Met Arg Ala Val His Leu Tyr Ile Ser Ala Leu Glu  
260 265 270

Asn Ser Cys Pro Leu Met Ala Phe Pro Cys Ala Ser Tyr Lys Ala Phe  
275 280 285

Leu Ala Gly Arg Cys Leu Asp Cys Phe Asn Pro Phe Leu Leu Ser Cys  
290 295 300

Pro Arg Ile Gly Leu Val Glu Gln Gly Gly Val Lys Ile Glu Pro Leu  
305 310 315 320

Pro Lys Glu Val Lys Val Tyr Leu Leu Thr Thr Ser Ser Ala Pro Tyr  
 325 330 335

Cys Met His His Ser Leu Val Glu Phe His Leu Lys Glu Leu Arg Asn  
 340 345 350

Lys Asp Thr Asn Ile Glu Val Thr Phe Leu Ser Ser Asn Ile Thr Ser  
 355 360 365

Ser Ser Lys Ile Thr Ile Pro Lys Gln Gln Arg Tyr Gly Lys Gly Ile  
 370 375 380

Ile Ala His Ala Thr Pro Gln Cys Gln Ile Asn Gln Val Lys Phe Lys  
 385 390 395 400

Phe Gln Ser Ser Asn Arg Val Trp Lys Lys Asp Arg Thr Thr Ile Ile  
 405 410 415

Gly Lys Phe Cys Thr Ala Leu Leu Pro Val Asn Asp Arg Glu Lys Met  
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Cys Asp Leu Lys Ile Ala Cys Val  
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<400> 130

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Ser Cys Ile Asp Pro Ser Met Gly Leu Asn Glu Glu Gln Lys Glu Phe  
35 40 45

Gln Lys Val Ala Phe Asp Phe Ala Ala Arg Glu Met Ala Pro Asn Met  
50 55 60

Ala Glu Trp Asp Gln Lys Glu Leu Phe Pro Val Asp Val Met Arg Lys  
65 70 75 80

Ala Ala Gln Leu Gly Phe Gly Gly Val Tyr Ile Gln Thr Asp Val Gly  
85 90 95

Gly Ser Gly Leu Ser Arg Leu Asp Thr Ser Val Ile Phe Glu Ala Leu  
100 105 110

Ala Thr Gly Cys Thr Ser Thr Thr Ala Tyr Ile Ser Ile His Asn Met  
115 120 125

Cys Ala Trp Met Ile Asp Ser Phe Gly Asn Glu Glu Gln Arg His Lys  
130 135 140

Phe Cys Pro Pro Leu Cys Thr Met Glu Lys Phe Ala Ser Tyr Cys Leu  
145 150 155 160

Thr Glu Pro Gly Ser Gly Ser Asp Ala Ala Ser Leu Leu Thr Ser Ala  
165 170 175

Lys Lys Gln Gly Asp His Tyr Ile Leu Asn Gly Ser Lys Ala Phe Ile  
180 185 190

Ser Gly Ala Gly Glu Ser Asp Ile Tyr Val Val Met Cys Arg Thr Gly  
195 200 205

Gly Pro Gly Pro Lys Gly Ile Ser Cys Ile Val Val Glu Lys Gly Thr  
210 215 220

Pro Gly Leu Ser Phe Gly Lys Lys Glu Lys Lys Val Gly Trp Asn Ser  
225 230 235 240

Gln Pro Thr Arg Ala Val Ile Phe Glu Asp Cys Ala Val Pro Val Ala  
245 250 255

Asn Arg Ile Gly Ser Glu Gly Gln Gly Phe Leu Ile Ala Val Arg Gly  
260 265 270

Leu Asn Gly Gly Arg Ile Asn Ile Ala Ser Cys Ser Leu Gly Ala Ala  
275 280 285

His Ala Ser Val Ile Leu Thr Arg Asp His Leu Asn Val Arg Lys Gln  
290 295 300

Phe Gly Glu Pro Leu Ala Ser Asn Gln Tyr Leu Gln Phe Thr Leu Ala  
305 310 315 320

Asp Met Ala Thr Arg Leu Val Ala Ala Arg Leu Met Val Arg Asn Ala  
325 330 335

Ala Val Ala Leu Gln Glu Glu Arg Lys Asp Ala Val Ala Leu Cys Ser  
340 345 350

Met Ala Lys Leu Phe Ala Thr Asp Glu Cys Phe Ala Ile Cys Asn Gln  
355 360 365

Ala Leu Gln Met His Gly Gly Tyr Gly Tyr Leu Lys Asp Tyr Ala Val  
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Gln Gln Tyr Val Arg Asp Ser Arg Val His Gln Ile Leu Glu Gly Ser  
385 390 395 400

Asn Glu Val Met Arg Ile Leu Ile Ser Arg Ser Leu Leu Gln Glu

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Leu Leu Lys His Val Val Leu Leu Leu Ser Arg Ser Lys Ser Thr Arg  
 35 40 45

Gly Glu Trp Arg Arg Met Leu Thr Ser Glu Gly Leu Arg Cys Val Trp  
 50 55 60

Lys Ser Phe Leu Leu Asp Ala Tyr Lys Gln Val Lys Leu Gly Glu Asp  
 65 70 75 80

Ala Pro Asn Ser Ser Val Val His Val Ser Ser Thr Glu Gly Gly Asp  
 85 90 95

Asn Ser Gly Asn Gly Thr Gln Glu Lys Ile Ala Glu Gly Ala Thr Cys  
 100 105 110

His Leu Leu Asp Phe Ala Ser Pro Glu Arg Pro Leu Val Val Asn Phe  
 115 120 125

Gly Ser Ala Thr Xaa Pro Pro Phe Thr Ser Gln Leu Pro Ala Phe Arg  
 130 135 140

Lys Leu Val Glu Glu Phe Ser Ser Val Ala Asp Phe Leu Leu Val Tyr  
 145 150 155 160

Ile Asp Glu Ala His Pro Ser Asp Gly Trp Ala Ile Pro Gly Asp Ser  
 165 170 175

Ser Leu Ser Phe Glu Val Lys Lys His Gln Asn Gln Glu Asp Arg Cys  
 180 185 190

Ala Ala Ala Gln Gln Leu Leu Glu Arg Phe Ser Leu Pro Pro Gln Cys  
 195 200 205

Arg Val Val Ala Asp Arg Met Asp Asn Asn Ala Asn Ile Ala Tyr Gly  
 210 215 220

Val Ala Phe Glu Arg Val Cys Ile Val Gln Arg Gln Lys Ile Ala Tyr  
 225 230 235 240

Leu Gly Gly Lys Gly Pro Phe Ser Tyr Asn Leu Gln Glu Val Arg His  
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Trp Leu Glu Lys Asn Phe Ser Lys Arg Xaa Lys Lys Thr Arg Leu Ala  
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<213> human organism

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<400> 134

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Gly Thr Trp Asp Lys Val Ser Val Ser Ile Val Gly Thr Arg Gly Glu
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Ser Pro Pro Leu Pro Leu Asp Asn Leu Gly Lys Glu Phe Thr Ala Gly
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Ala Glu Glu Asp Phe Gln Val Thr Leu Pro Glu Asp Val Gly Arg Val
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Leu Leu Leu Arg Val His Lys Ala Pro Pro Val Leu Pro Leu Leu Gly
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Pro Leu Ala Pro Asp Ala Trp Phe Cys Arg Trp Phe Gln Leu Thr Pro
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Pro Arg Gly Gly His Leu Leu Phe Pro Cys Tyr Gln Trp Leu Glu Gly
100          105          110

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Ala Gly Thr Leu Val Leu Gln Glu Gly Thr Ala Lys Val Ser Trp Ala  
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Asp His His Pro Val Leu Gln Gln Gln Arg Gln Glu Glu Leu Gln Ala  
130 135 140

Arg Gln Glu Met Tyr Gln Trp Lys Ala Tyr Asn Pro Gly Trp Pro His  
145 150 155 160

Cys Leu Asp Glu Lys Thr Val Glu Asp Leu Glu Leu Asn Ile Lys Tyr  
165 170 175

Ser Thr Ala Lys Asn Ala Asn Phe Tyr Leu Gln Ala Gly Ser Ala Phe  
180 185 190

Ala Glu Met Lys Ile Lys Gly Leu Leu Asp Arg Lys Gly Leu Trp Arg  
195 200 205

Ser Leu Asn Glu Met Lys Arg Ile Phe Asn Phe Arg Arg Thr Pro Ala  
210 215 220

Ala Glu His Ala Phe Glu His Trp Gln Glu Asp Ala Phe Phe Ala Ser  
225 230 235 240

Gln Phe Leu Asn Gly Leu Asn Pro Val Leu Ile Arg Arg Cys His Tyr  
245 250 255

Leu Pro Lys Asn Phe Pro Val Thr Asp Ala Met Val Ala Ser Leu Leu  
260 265 270

Gly Pro Gly Thr Ser Leu Gln Ala Glu Leu Glu Lys Gly Ser Leu Phe  
275 280 285

Leu Val Asp His Gly Ile Leu Ser Gly Ile Gln Thr Asn Val Ile Asn  
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Gly Lys Pro Gln Phe Ser Ala Ala Pro Met Thr Leu Leu Tyr Gln Ser  
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Pro Gly Cys Gly Pro Leu Leu Pro Leu Ala Ile Gln Leu Ser Gln Thr  
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Pro Gly Pro Asn Ser Pro Ile Phe Leu Pro Thr Asp Asp Lys Trp Asp  
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Trp Leu Leu Ala Lys Thr Trp Val Arg Asn Ala Glu Phe Ser Phe His  
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Glu Ala Leu Thr His Leu Leu His Ser His Leu Leu Pro Glu Val Phe  
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Thr Leu Ala Thr Leu Arg Gln Leu Pro His Cys His Pro Leu Phe Lys  
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Leu Leu Ile Pro His Thr Arg Tyr Thr Leu His Ile Asn Thr Leu Ala  
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Arg Glu Leu Leu Ile Val Pro Gly Gln Val Val Asp Arg Ser Thr Gly  
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Ile Gly Ile Glu Gly Phe Ser Glu Leu Ile Gln Arg Asn Met Lys Gln  
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Leu Asn Tyr Ser Leu Leu Cys Leu Pro Glu Asp Ile Arg Thr Arg Gly  
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Val Glu Asp Ile Pro Gly Tyr Tyr Tyr Arg Asp Asp Gly Met Gln Ile  
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Trp Gly Ala Val Glu Arg Phe Val Ser Glu Ile Ile Gly Ile Tyr Tyr  
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Pro Ser Asp Glu Ser Val Gln Asp Asp Arg Glu Leu Gln Ala Trp Val  
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Arg Glu Ile Phe Ser Lys Gly Phe Leu Asn Gln Glu Ser Ser Gly Ile  
515 520 525

Pro Ser Ser Leu Glu Thr Arg Glu Ala Leu Val Gln Tyr Val Thr Met  
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Val Ile Phe Thr Cys Ser Ala Lys His Ala Ala Val Ser Ala Gly Gln  
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Phe Asp Ser Cys Ala Trp Met Pro Asn Leu Pro Pro Ser Met Gln Leu  
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Pro Pro Pro Thr Ser Lys Gly Leu Ala Thr Cys Glu Gly Phe Ile Ala  
580 585 590

Thr Leu Pro Pro Val Asn Ala Thr Cys Asp Val Ile Leu Ala Leu Trp  
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Leu Leu Ser Lys Glu Pro Gly Asp Gln Arg Pro Leu Gly Thr Tyr Pro  
610 615 620

Asp Glu His Phe Thr Glu Glu Ala Pro Arg Arg Ser Ile Ala Thr Phe  
625 630 635 640

Gln Ser Arg Leu Ala Gln Ile Ser Arg Gly Ile Gln Glu Arg Asn Arg  
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Ser Val Ser Ile  
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<400> 136

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Pro Gly Pro Ala Pro Phe Leu Ala Pro Val Ala Ala Pro Val Gly Gly  
35 40 45

Ile Ser Phe His Leu Gln Ile Gly Leu Ser Arg Glu Pro Val Leu Leu  
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Leu Gln Asp Ser Ser Gly Asp Tyr Ser Leu Ala His Val Arg Glu Met  
65 70 75 80

Ala Cys Ser Ile Val Asp Gln Lys Phe Pro Glu Cys Gly Phe Tyr Gly  
85 90 95

Met Tyr Asp Lys Ile Leu Leu Phe Arg His Asp Pro Thr Ser Glu Asn  
100 105 110

Ile Leu Gln Leu Val Lys Ala Ala Ser Asp Ile Gln Glu Gly Asp Leu  
115 120 125

Ile Glu Val Val Leu Ser Arg Ser Ala Thr Phe Glu Asp Phe Gln Ile  
130 135 140

Arg Pro His Ala Leu Phe Val His Ser Tyr Arg Ala Pro Ala Phe Cys  
145 150 155 160

Asp His Cys Gly Glu Met Leu Trp Gly Leu Val Arg Gln Gly Leu Lys  
165 170 175

Cys Glu Gly Cys Gly Leu Asn Tyr His Lys Arg Cys Ala Phe Lys Ile  
180 185 190

Pro Asn Asn Cys Ser Gly Val Arg Arg Arg Arg Leu Ser Asn Val Ser  
195 200 205

Leu Thr Gly Val Ser Thr Ile Arg Thr Ser Ser Ala Glu Leu Ser Thr  
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Ser Ala Pro Asp Glu Pro Leu Leu Gln Lys Ser Pro Ser Glu Ser Phe  
225 230 235 240

Ile Gly Arg Glu Lys Arg Ser Asn Ser Gln Ser Tyr Ile Gly Arg Pro  
245 250 255

Ile His Leu Asp Lys Ile Leu Met Ser Lys Val Lys Val Pro His Thr  
260 265 270

Phe Val Ile His Ser Tyr Thr Arg Pro Thr Val Cys Gln Tyr Cys Lys  
275 280 285

Lys Leu Leu Lys Gly Leu Phe Arg Gln Gly Leu Gln Cys Lys Asp Cys  
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Arg Phe Asn Cys His Lys Arg Cys Ala Pro Lys Val Pro Asn Asn Cys  
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325 330 335

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Asn Ser Gly Leu Met Asp Asp Met Glu Glu Ala Met Val Gln Asp Ala  
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Glu Met Ala Met Ala Glu Cys Gln Asn Asp Ser Gly Glu Met Gln Asp  
370 375 380

Pro Asp Pro Asp His Glu Asp Ala Asn Arg Thr Ile Ser Pro Ser Thr  
385 390 395 400

Ser Asn Asn Ile Pro Leu Met Arg Val Val Gln Ser Val Lys His Thr  
405 410 415

Lys Arg Lys Ser Ser Thr Val Met Lys Glu Gly Trp Met Val His Tyr  
420 425 430

Thr Ser Lys Asp Thr Leu Arg Lys Arg His Tyr Trp Arg Leu Asp Ser  
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Lys Cys Ile Thr Leu Phe Gln Asn Asp Thr Gly Ser Arg Tyr Tyr Lys

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Ala Asn Val Val Tyr Tyr Val Gly Glu Asn Val Val Asn Pro Ser Ser				
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Pro Ser Pro Asn Asn Ser Val Leu Thr Ser Gly Val Gly Ala Asp Val				
	515		520	525
Ala Arg Met Trp Glu Ile Ala Ile Gln His Ala Leu Met Pro Val Ile				
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Pro Lys Gly Ser Ser Val Gly Thr Gly Thr Asn Leu His Arg Asp Ile				
545		550		555
Ser Val Ser Ile Ser Val Ser Asn Cys Gln Ile Gln Glu Asn Val Asp				
	565		570	575
Ile Ser Thr Val Tyr Gln Ile Phe Pro Asp Glu Val Leu Gly Ser Gly				
	580		585	590
Gln Phe Gly Ile Val Tyr Gly Gly Lys His Arg Lys Thr Gly Arg Asp				
	595		600	605
Val Ala Ile Lys Ile Ile Asp Lys Leu Arg Phe Pro Thr Lys Gln Glu				
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Ser Gln Leu Arg Asn Glu Val Ala Ile Leu Gln Asn Leu His His Pro				
625		630		635
Gly Val Val Asn Leu Glu Cys Met Phe Glu Thr Pro Glu Arg Val Phe				
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Val Val Met Glu Lys Leu His Gly Asp Met Leu Glu Met Ile Leu Ser				
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Ser Glu Lys Gly Arg Leu Pro Glu His Ile Thr Lys Phe Leu Ile Thr				
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Gln Ile Leu Val Ala Leu Arg His Leu His Phe Lys Asn Ile Val His  
690 695 700

Cys Asp Leu Lys Pro Glu Asn Val Leu Leu Ala Ser Ala Asp Pro Phe  
705 710 715 720

Pro Gln Val Lys Leu Cys Asp Phe Gly Phe Ala Arg Ile Ile Gly Glu  
725 730 735

Lys Ser Phe Arg Arg Ser Val Val Gly Thr Pro Ala Tyr Leu Ala Pro  
740 745 750

Glu Val Leu Arg Asn Lys Gly Tyr Asn Arg Ser Leu Asp Met Trp Ser  
755 760 765

Val Gly Val Ile Ile Tyr Val Ser Leu Ser Gly Thr Phe Pro Phe Asn  
770 775 780

Glu Asp Glu Asp Ile His Asp Gln Ile Gln Asn Ala Ala Phe Met Tyr  
785 790 795 800

Pro Pro Asn Pro Trp Lys Glu Ile Ser His Glu Ala Ile Asp Leu Ile  
805 810 815

Asn Asn Leu Leu Gln Val Lys Met Arg Lys Arg Tyr Ser Val Asp Lys  
820 825 830

Thr Leu Ser His Pro Trp Leu Gln Asp Tyr Gln Thr Trp Leu Asp Leu  
835 840 845

Arg Glu Leu Glu Cys Lys Ile Gly Glu Arg Tyr Ile Thr His Glu Ser  
850 855 860

Asp Asp Leu Arg Trp Glu Lys Tyr Ala Gly Glu Gln Arg Leu Gln Tyr  
865 870 875 880

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Ser	Ala	Pro	Arg	Arg	Ala	Pro	Leu	Trp	Thr	Cys	Leu	Leu	Leu	Cys	Ala
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Ala	Leu	Arg	Thr	Leu	Leu	Ala	Ser	Pro	Ser	Asn	Glu	Val	Asn	Leu	Leu
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Asp	Ser	Arg	Thr	Val	Met	Gly	Asp	Leu	Gly	Trp	Ile	Ala	Phe	Pro	Lys
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Asn	Gly	Trp	Glu	Glu	Ile	Gly	Glu	Val	Asp	Glu	Asn	Tyr	Ala	Pro	Ile
			85					90						95	

His Thr Tyr Gln Val Cys Lys Val Met Glu Gln Asn Gln Asn Asn Trp  
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Leu Leu Thr Ser Trp Ile Ser Asn Glu Gly Ala Ser Arg Ile Phe Ile  
115 120 125

Glu Leu Lys Phe Thr Leu Arg Asp Cys Asn Ser Leu Pro Gly Gly Leu  
130 135 140

Gly Thr Cys Lys Glu Thr Phe Asn Met Tyr Tyr Phe Glu Ser Asp Asp  
145 150 155 160

Gln Asn Gly Arg Asn Ile Lys Glu Asn Gln Tyr Ile Lys Ile Asp Thr  
165 170 175

Ile Ala Ala Asp Glu Ser Phe Thr Glu Leu Asp Leu Gly Asp Arg Val  
180 185 190

Met Lys Leu Asn Thr Glu Val Arg Asp Val Gly Pro Leu Ser Lys Lys  
195 200 205

Gly Phe Tyr Leu Ala Phe Gln Asp Val Gly Ala Cys Ile Ala Leu Val  
210 215 220

Ser Val Arg Val Tyr Tyr Lys Lys Cys Pro Ser Val Val Arg His Leu  
225 230 235 240

Ala Val Phe Pro Asp Thr Ile Thr Gly Ala Asp Ser Ser Gln Leu Leu  
245 250 255

Glu Val Ser Gly Ser Cys Val Asn His Ser Val Thr Asp Glu Pro Pro  
260 265 270

Lys Met His Cys Ser Ala Glu Gly Glu Trp Leu Val Pro Ile Gly Lys  
275 280 285

Cys Met Cys Lys Ala Gly Tyr Glu Glu Lys Asn Gly Thr Cys Gln Val  
290 295 300

Cys Arg Pro Gly Phe Phe Lys Ala Ser Pro His Ile Gln Ser Cys Gly  
305 310 315 320

Lys Cys Pro Pro His Ser Tyr Thr His Glu Glu Ala Ser Thr Ser Cys

325

330

335

Val Cys Glu Lys Asp Tyr Phe Arg Arg Glu Ser Asp Pro Pro Thr Met  
 340 345 350

Ala Cys Thr Arg Pro Pro Ser Ala Pro Arg Asn Ala Ile Ser Asn Val  
 355 360 365

Asn Glu Thr Ser Val Phe Leu Glu Trp Ile Pro Pro Ala Asp Thr Gly  
 370 375 380

Gly Arg Lys Asp Val Ser Tyr Tyr Ile Ala Cys Lys Lys Cys Asn Ser  
 385 390 395 400

His Ala Gly Val Cys Glu Glu Cys Gly Gly His Val Arg Tyr Leu Pro  
 405 410 415

Arg Gln Ser Gly Leu Lys Asn Thr Ser Val Met Met Val Asp Leu Leu  
 420 425 430

Ala His Thr Asn Tyr Thr Phe Glu Ile Glu Ala Val Asn Gly Val Ser  
 435 440 445

Asp Leu Ser Pro Gly Ala Arg Gln Tyr Val Ser Val Asn Val Thr Thr  
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Asn Gln Ala Ala Pro Ser Pro Val Thr Asn Val Lys Lys Gly Lys Ile  
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Ala Lys Asn Ser Ile Ser Leu Ser Trp Gln Glu Pro Asp Arg Pro Asn  
 485 490 495

Gly Ile Ile Leu Glu Tyr Glu Ile Lys His Phe Glu Lys Asp Gln Glu  
 500 505 510

Thr Ser Tyr Thr Ile Ile Lys Ser Lys Glu Thr Thr Ile Thr Ala Glu  
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Gly Leu Lys Pro Ala Ser Val Tyr Val Phe Gln Ile Arg Ala Arg Thr  
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Ala Ala Gly Tyr Gly Val Phe Ser Arg Arg Phe Glu Phe Glu Thr Thr  
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Pro Val Phe Ala Ala Ser Ser Asp Gln Ser Gln Ile Pro Val Ile Ala  
565 570 575

Val Ser Val Thr Val Gly Val Ile Leu Leu Ala Val Val Ile Gly Val  
580 585 590

Leu Leu Ser Gly Ser Cys Cys Glu Cys Gly Cys Gly Arg Ala Ser Ser  
595 600 605

Leu Cys Ala Val Ala His Pro Ile Leu Ile Trp Arg Cys Gly Tyr Ser  
610 615 620

Lys Ala Lys Gln Asp Pro Glu Glu Glu Lys Met His Phe His Asn Gly  
625 630 635 640

His Ile Lys Leu Pro Gly Val Arg Thr Tyr Ile Asp Pro His Thr Tyr  
645 650 655

Glu Asp Pro Asn Gln Ala Val His Glu Phe Ala Lys Glu Ile Glu Ala  
660 665 670

Ser Cys Ile Thr Ile Glu Arg Val Ile Gly Ala Gly Glu Phe Gly Glu  
675 680 685

Val Cys Ser Gly Arg Leu Lys Leu Pro Gly Lys Arg Glu Leu Pro Val  
690 695 700

Ala Ile Lys Thr Leu Lys Val Gly Tyr Thr Glu Lys Gln Arg Arg Asp  
705 710 715 720

Phe Leu Gly Glu Ala Ser Ile Met Gly Gln Phe Asp His Pro Asn Ile  
725 730 735

Ile His Leu Glu Gly Val Val Thr Lys Ser Lys Pro Val Met Ile Val  
740 745 750

Thr Glu Tyr Met Glu Asn Gly Ser Leu Asp Thr Phe Leu Lys Lys Asn  
755 760 765

Asp Gly Gln Phe Thr Val Ile Gln Leu Val Gly Met Leu Arg Gly Ile  
770 775 780

Ser Ala Gly Met Lys Tyr Leu Ser Asp Met Gly Tyr Val His Arg Asp  
785 790 795 800

Leu Ala Ala Arg Asn Ile Leu Ile Asn Ser Asn Leu Val Cys Lys Val  
805 810 815

Ser Asp Phe Gly Leu Ser Arg Val Leu Glu Asp Asp Pro Glu Ala Ala  
820 825 830

Tyr Thr Thr Arg Gly Gly Lys Ile Pro Ile Arg Trp Thr Ala Pro Glu  
835 840 845

Ala Ile Ala Phe Arg Lys Phe Thr Ser Ala Ser Asp Val Trp Ser Tyr  
850 855 860

Gly Ile Val Met Trp Glu Val Val Ser Tyr Gly Glu Arg Pro Tyr Trp  
865 870 875 880

Glu Met Thr Asn Gln Asp Val Ile Lys Ala Val Glu Glu Gly Tyr Arg  
885 890 895

Leu Pro Ser Pro Met Asp Cys Pro Ala Ala Leu Tyr Gln Leu Met Leu  
900 905 910

Asp Cys Trp Gln Lys Glu Arg Asn Ser Arg Pro Lys Phe Asp Glu Ile  
915 920 925

Val Asn Met Leu Asp Lys Leu Ile Arg Asn Pro Ser Ser Leu Lys Thr  
930 935 940

Leu Val Asn Ala Ser Cys Arg Val Ser Asn Leu Leu Ala Glu His Ser  
945 950 955 960

Pro Leu Gly Ser Gly Ala Tyr Arg Ser Val Gly Glu Trp Leu Glu Ala  
965 970 975

Ile Lys Met Gly Arg Tyr Thr Glu Ile Phe Met Glu Asn Gly Tyr Ser  
980 985 990

Ser Met Asp Ala Val Ala Gln Val Thr Leu Glu Asp Leu Arg Arg Leu  
995 1000 1005

Gly Val Thr Leu Val Gly His Gln Lys Lys Ile Met Asn Ser Leu  
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Gln Glu Met Lys Val Gln Leu Val Asn Gly Met Val Pro Leu  
 1025 1030 1035

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Thr Leu Leu Trp Ala Glu Trp Gln Gly Arg Arg Pro Glu Trp Glu Leu  
35 40 45

Thr Asp Met Val Val Trp Val Thr Gly Ala Ser Ser Gly Ile Gly Glu  
50 55 60

Glu Leu Ala Tyr Gln Leu Ser Lys Leu Gly Val Ser Leu Val Leu Ser  
65 70 75 80

Ala Arg Arg Val His Glu Leu Glu Arg Val Lys Arg Arg Cys Leu Glu  
85 90 95

Asn Gly Asn Leu Lys Glu Lys Asp Ile Leu Val Leu Pro Leu Asp Leu  
100 105 110

Thr Asp Thr Gly Ser His Glu Ala Ala Thr Lys Ala Val Leu Gln Glu  
115 120 125

Phe Gly Arg Ile Asp Ile Leu Val Asn Asn Gly Gly Met Ser Gln Arg  
130 135 140

Ser Leu Cys Met Asp Thr Ser Leu Asp Val Tyr Arg Lys Leu Ile Glu  
145 150 155 160

Leu Asn Tyr Leu Gly Thr Val Ser Leu Thr Lys Cys Val Leu Pro His  
165 170 175

Met Ile Glu Arg Lys Gln Gly Lys Ile Val Thr Val Asn Ser Ile Leu  
180 185 190

Gly Ile Ile Ser Val Pro Leu Ser Ile Gly Tyr Cys Ala Ser Lys His  
 195 200 205

Ala Leu Arg Gly Phe Phe Asn Gly Leu Arg Thr Glu Leu Ala Thr Tyr  
 210 215 220

Pro Gly Ile Ile Val Ser Asn Ile Cys Pro Gly Pro Val Gln Ser Asn  
 225 230 235 240

Ile Val Glu Asn Ser Leu Ala Gly Glu Val Thr Lys Thr Ile Gly Asn  
 245 250 255

Asn Gly Asp Gln Ser His Lys Met Thr Thr Ser Arg Cys Val Arg Leu  
 260 265 270

Met Leu Ile Ser Met Ala Asn Asp Leu Lys Glu Val Trp Ile Ser Glu  
 275 280 285

Gln Pro Phe Leu Leu Val Thr Tyr Leu Trp Gln Tyr Met Pro Thr Trp  
 290 295 300

Ala Trp Trp Ile Thr Asn Lys Met Gly Lys Lys Arg Ile Glu Asn Phe  
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Lys Ser Gly Val Asp Ala Asp Ser Ser Tyr Phe Lys Ile Phe Lys Thr  
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Lys His Asp

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<211> 579

<212> PRT

<213> human organism

<400> 142

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Pro Leu Gln Pro Pro Ala Ser Val Gly Gly Gly Gly Gly Ala Ser Ser  
35 40 45

Pro Ser Ala Ala Ala Ala Ala Ala Ala Val Ser Ser Ser Ala Pro  
50 55 60

Glu Ile Val Val Ser Lys Pro Glu His Asn Asn Ser Asn Asn Leu Ala  
65 70 75 80

Leu Tyr Gly Thr Gly Gly Gly Gly Ser Thr Gly Gly Gly Gly Gly Gly  
85 90 95

Gly Gly Ser Gly His Gly Ser Ser Ser Gly Thr Lys Ser Ser Lys Lys  
100 105 110

Lys Asn Gln Asn Ile Gly Tyr Lys Leu Gly His Arg Arg Ala Leu Phe  
115 120 125

Glu Lys Arg Lys Arg Leu Ser Asp Tyr Ala Leu Ile Phe Gly Met Phe  
130 135 140

Gly Ile Val Val Met Val Ile Glu Thr Glu Leu Ser Trp Gly Ala Tyr  
145 150 155 160

Asp Lys Ala Ser Leu Tyr Ser Leu Ala Leu Lys Cys Leu Ile Ser Leu  
165 170 175

Ser Thr Ile Ile Leu Leu Gly Leu Ile Ile Val Tyr His Ala Arg Glu  
180 185 190

Ile Gln Leu Phe Met Val Asp Asn Gly Ala Asp Asp Trp Arg Ile Ala  
195 200 205

Met Thr Tyr Glu Arg Ile Phe Phe Ile Cys Leu Glu Ile Leu Val Cys  
210 215 220

Ala Ile His Pro Ile Pro Gly Asn Tyr Thr Phe Thr Trp Thr Ala Arg  
225 230 235 240

Leu Ala Phe Ser Tyr Ala Pro Ser Thr Thr Thr Ala Asp Val Asp Ile  
245 250 255

Ile Leu Ser Ile Pro Met Phe Leu Arg Leu Tyr Leu Ile Ala Arg Val  
260 265 270

Met Leu Leu His Ser Lys Leu Phe Thr Asp Ala Ser Ser Arg Ser Ile  
275 280 285

Gly Ala Leu Asn Lys Ile Asn Phe Asn Thr Arg Phe Val Met Lys Thr  
290 295 300

Leu Met Thr Ile Cys Pro Gly Thr Val Leu Leu Val Phe Ser Ile Ser  
305 310 315 320

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Asp Gln Gln Asp Val Thr Ser Asn Phe Leu Gly Ala Met Trp Leu Ile  
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Ser Ile Thr Phe Leu Ser Ile Gly Tyr Gly Asp Met Val Pro Asn Thr  
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Tyr Cys Gly Lys Gly Val Cys Leu Leu Thr Gly Ile Met Gly Ala Gly  
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Cys Thr Ala Leu Val Val Ala Val Val Ala Arg Lys Leu Glu Leu Thr  
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Lys Ala Glu Lys His Val His Asn Phe Met Met Asp Thr Gln Leu Thr  
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Lys Arg Val Lys Asn Ala Ala Ala Asn Val Leu Arg Glu Thr Trp Leu  
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Ile Tyr Lys Asn Thr Lys Leu Val Lys Lys Ile Asp His Ala Lys Val  
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Arg Lys His Gln Arg Lys Phe Leu Gln Ala Ile His Gln Leu Arg Ser  
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Val Lys Met Glu Gln Arg Lys Leu Asn Asp Gln Ala Asn Thr Leu Val  
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Asp Leu Ala Lys Thr Gln Asn Ile Met Tyr Asp Met Ile Ser Asp Leu  
 485 490 495

Asn Glu Arg Ser Glu Asp Phe Glu Lys Arg Ile Val Thr Leu Glu Thr  
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Lys Leu Glu Thr Leu Ile Gly Ser Ile His Ala Leu Pro Gly Leu Ile  
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Ser Gln Thr Ile Arg Gln Gln Gln Arg Asp Phe Ile Glu Ala Gln Met  
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Ser Ala Pro Trp Pro Glu Pro Glu Arg Glu Ser Arg Pro Pro Pro Gly  
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Pro Gly Pro Gly Asn Thr Thr Arg Phe Gly Ser Gly Ala Ala Gly Gly  
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Ser Gly Ser Ser Ser Ser Asn Ser Ser Gly Asp Ala Leu Val Thr Arg  
65 70 75 80

Ile Ser Ile Leu Leu Arg Asp Leu Pro Thr Leu Lys Ala Ala Val Ile  
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Val Ala Phe Ala Phe Thr Thr Leu Leu Ile Ala Cys Leu Leu Leu Arg  
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Val Phe Arg Ser Gly Lys Arg Leu Lys Lys Thr Arg Lys Tyr Asp Ile  
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Ile Thr Thr Pro Ala Glu Arg Val Glu Met Ala Pro Leu Asn Glu Glu  
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Asp Asp Glu Asp Glu Asp Ser Thr Val Phe Asp Ile Lys Tyr Arg Val  
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Ser Leu Pro Ala Ala Leu Arg Arg Gln Leu Pro Gly Cys Gln Thr Leu  
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Leu Thr Val Pro Val Pro Pro Pro Phe Ile Leu Asp Ile Asp Leu Pro  
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Ala Arg Cys Ser Gly Arg Pro Asp Gly Gly Ile Arg Pro Gly Lys Thr  
195 200 205

Cys Phe Pro Ala Trp Trp His Pro Val Glu Ser Trp Ser Ala Ala Thr  
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Trp Gly Val Lys Asp Trp Thr Trp Lys Pro Ser Cys Val Gly Gly Val  
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Glu Thr Lys Thr Asn Val Met Tyr Lys Thr Pro Ala Pro Ser Cys Val

245

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255

Ser Gly Ile Cys Ser Asp Cys His Trp Gln Ala Arg Phe His Val Thr  
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Thr Met Glu Leu Leu Leu Pro Pro Phe Gly His Pro Phe Lys Val Pro  
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Glu Lys Leu Asp Ser Ser Ala Leu Arg Arg Asn Thr Arg Ala Pro Ser  
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Asp Leu Pro Asn Pro Trp Trp His Phe Ser Ala Thr Gly Ser Pro Ile  
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Lys Thr Leu Tyr Thr Gln Thr Met Ser Thr Leu Gly Leu Asp Val Phe  
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Cys Gly Ala Gly Gln Arg Gly Thr Phe Cys Glu Asp Arg Ala Val Thr  
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Lys Val Leu Gln Gly Ser Ser Phe Ser Lys Gln Leu Arg Trp Lys Pro  
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Ala Leu Glu Ser Gly Phe Pro His His Leu Arg Leu Leu Arg Glu Cys  
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Pro Pro Leu Ser Thr His Pro Val Arg Leu Ala Arg Ser Asp Ala Arg  
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Gly Gln Ala Ser Leu Thr Gly Arg Arg Val Phe Arg Arg Pro Arg Gln  
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Ser Leu His Gly Gly Gly Ser Ala Gly Thr Ala Thr Cys Leu Leu Val  
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Ile Cys Leu Pro Cys Cys Ala Val Glu His Leu Arg Glu Ala Lys Arg  
485 490 495

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Thr Ile Pro Asp Thr Gln Gly Gln Glu Gly Pro Arg Glu Asp Val Thr  
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Glu Gly Phe Gln Asp Gly Arg Cys Gln Lys Met Val Leu Met Ser Glu  
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Glu Gly Pro Pro Ser Leu Thr Gly Cys Glu Arg Leu Thr Gly Ser His  
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Asp Glu Ala Gly Ala Glu Gly Ser Ala Arg Gly Ala Thr Ala Gly Arg  
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Leu Tyr Ser Pro Ser Leu Pro Ala Glu Ser Leu Gly Pro Arg Leu Ala  
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Ser Ser Ser Arg Gly Pro Pro Pro Arg Ala Thr Arg Leu Pro Pro Pro  
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Gly Pro Leu Cys Ser Ser Phe Ser Thr Pro Ser Thr Pro Gln Glu Lys  
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Ser Pro Ser Gly Ser Phe His Phe Asp Tyr Glu Val Pro Leu Gly Arg  
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Gly Gly Leu Lys Lys Ser Met Ala Trp Asp Leu Pro Ser Val Leu Ala  
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Gly Pro Ala Ser Ser Arg Ser Ala Ser Ser Ile Leu Cys Ser Ser Gly  
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Gly Gly Pro Asn Gly Ile Phe Ala Ser Pro Arg Arg Trp Leu Gln Gln  
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Arg Lys Phe Gln Ser Pro Pro Asp Ser Arg Gly His Pro Tyr Val Val  
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Trp Lys Ser Glu Gly Asp Phe Thr Trp Asn Ser Met Ser Gly Arg Ser  
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Ala Arg Leu Gln Glu Val Pro Phe Tyr Gln Leu Gln Gln Asp Cys Asp

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Gln Lys Asp Ala Ser Asp Phe Val Ala Ser Leu Leu Pro Phe Gly Asn						
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Lys Arg Gln Asn Lys Glu Leu Ser Ser Ser Asn Ser Ser Leu Ser Ser						
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Thr Ser Glu Thr Pro Asn Glu Ser Thr Ser Pro Asn Thr Pro Glu Pro						
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Leu Ser Leu Asn Pro Ile Tyr Arg Gln Val Pro Arg Leu Val Asp Ser						
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Cys Cys Gln His Leu Glu Lys His Gly Leu Gln Thr Val Gly Ile Phe						
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Arg Val Gly Ser Ser Lys Lys Arg Val Arg Gln Leu Arg Glu Glu Phe						
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Pro Glu Glu Gln Leu Gly Thr Leu Gln Leu Leu Ile Tyr Leu Leu Pro  
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Pro Cys Asn Cys Asp Thr Leu His Arg Leu Leu Gln Phe Leu Ser Ile  
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Val Ala Arg His Ala Asp Asp Asn Ile Ser Lys Asp Gly Gln Glu Val  
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Asn Leu Leu His Lys Gln Lys Ser Ser Asp Lys Glu Phe Ser Val Gln  
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Ser Ser Ala Arg Ala Glu Glu Ser Thr Ala Ile Ile Ala Val Val Gln  
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Lys Met Ile Glu Asn Tyr Glu Ala Leu Phe Met Val Pro Pro Asp Leu  
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Gln Asn Glu Val Leu Ile Ser Leu Leu Glu Thr Asp Pro Asp Val Val  
610 615 620

Asp Tyr Leu Leu Arg Arg Lys Ala Ser Gln Ser Ser Ser Pro Asp Met  
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Leu Gln Ser Glu Val Ser Phe Ser Val Gly Gly Arg His Ser Ser Thr  
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Asp Ser Asn Lys Ala Ser Ser Gly Asp Ile Ser Pro Tyr Asp Asn Asn  
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Ser Pro Val Leu Ser Glu Arg Ser Leu Leu Ala Met Gln Glu Asp Ala  
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Ala Pro Gly Gly Ser Glu Lys Leu Tyr Arg Val Pro Gly Gln Phe Met  
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Leu Val Gly His Leu Ser Ser Ser Lys Ser Arg Glu Ser Ser Pro Gly  
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Pro Arg Leu Gly Lys Asp Leu Ser Glu Glu Pro Phe Asp Ile Trp Gly  
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Thr Trp His Ser Thr Leu Lys Ser Gly Ser Lys Asp Pro Gly Met Thr  
740 745 750

Gly Ser Ser Gly Asp Ile Phe Glu Ser Ser Ser Leu Arg Ala Gly Pro  
755 760 765

Cys Ser Leu Ser Gln Gly Asn Leu Ser Pro Asn Trp Pro Arg Trp Gln  
770 775 780

Gly Ser Pro Ala Glu Leu Asp Ser Asp Thr Gln Gly Ala Arg Arg Thr  
785 790 795 800

Gln Ala Ala Ala Pro Ala Thr Glu Gly Arg Ala His Pro Ala Val Ser  
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Arg Ala Cys Ser Thr Pro His Val Gln Val Ala Gly Lys Ala Glu Arg  
820 825 830

Pro Thr Ala Arg Ser Glu Gln Tyr Leu Thr Leu Ser Gly Ala His Asp  
835 840 845

Leu Ser Glu Ser Glu Leu Asp Val Ala Gly Leu Gln Ser Arg Ala Thr  
850 855 860

Pro Gln Cys Gln Arg Pro His Gly Ser Gly Arg Asp Asp Lys Arg Pro  
865 870 875 880

Pro Pro Pro Tyr Pro Gly Pro Gly Lys Pro Ala Ala Ala Ala Ala Trp  
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900 905 910

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Ala Gly Trp Leu Asp Trp Gln Arg Glu Arg Trp Gln Ile Trp Glu Leu  
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<210> 148
<211> 346
<212> PRT
<213> human organism

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<400> 148

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Met Gly Asp Pro Pro Lys Lys Lys Arg Leu Ile Ser Leu Cys Val Gly
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Cys Gly Asn Gln Ile His Asp Gln Tyr Ile Leu Arg Val Ser Pro Asp  
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Leu Glu Trp His Ala Ala Cys Leu Lys Cys Ala Glu Cys Asn Gln Tyr  
35 40 45

Leu Asp Glu Ser Cys Thr Cys Phe Val Arg Asp Gly Lys Thr Tyr Cys  
50 55 60

Lys Arg Asp Tyr Ile Arg Leu Tyr Gly Ile Lys Cys Ala Lys Cys Ser  
65 70 75 80

Ile Gly Phe Ser Lys Asn Asp Phe Val Met Arg Ala Arg Ser Lys Val  
85 90 95

Tyr His Ile Glu Cys Phe Arg Cys Val Ala Cys Ser Arg Gln Leu Ile  
100 105 110

Pro Gly Asp Glu Phe Ala Leu Arg Glu Asp Gly Leu Phe Cys Arg Ala  
115 120 125

Asp His Asp Val Val Glu Arg Ala Ser Leu Gly Ala Gly Asp Pro Leu  
130 135 140

Ser Pro Leu His Pro Ala Arg Pro Leu Gln Met Ala Ala Glu Pro Ile  
145 150 155 160

Ser Ala Arg Gln Pro Ala Leu Arg Pro His Val His Lys Gln Pro Glu  
165 170 175

Lys Thr Thr Arg Val Arg Thr Val Leu Asn Glu Lys Gln Leu His Thr  
180 185 190

Leu Arg Thr Cys Tyr Ala Ala Asn Pro Arg Pro Asp Ala Leu Met Lys  
195 200 205

Glu Gln Leu Val Glu Met Thr Gly Leu Ser Pro Arg Val Ile Arg Val  
210 215 220

Trp Phe Gln Asn Lys Arg Cys Lys Asp Lys Lys Arg Ser Ile Met Met  
225 230 235 240

Lys Gln Leu Gln Gln Gln Gln Pro Asn Asp Lys Thr Asn Ile Gln Gly

245

250

255

Met Thr Gly Thr Pro Met Val Ala Ala Ser Pro Glu Arg His Asp Gly  
 260 265 270

Gly Leu Gln Ala Asn Pro Val Glu Val Gln Ser Tyr Gln Pro Pro Trp  
 275 280 285

Lys Val Leu Ser Asp Phe Ala Leu Gln Ser Asp Ile Asp Gln Pro Ala  
 290 295 300

Phe Gln Gln Leu Val Asn Phe Ser Glu Gly Gly Pro Gly Ser Asn Ser  
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Thr Gly Ser Glu Val Ala Ser Met Ser Ser Gln Leu Pro Asp Thr Pro  
 325 330 335

Asn Ser Met Val Ala Ser Pro Ile Glu Ala  
 340 345

&lt;210&gt; 149

&lt;211&gt; 1886

&lt;212&gt; DNA

&lt;213&gt; human organism

&lt;400&gt; 149

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aactgagaca ataaaacca aagcat 1886

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<210> 150
<211> 354
<212> PRT
<213> human organism

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<400> 150

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Met Ser Leu Arg Gly Ser Leu Ser Arg Leu Leu Gln Thr Arg Val His
1           5           10           15

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Ser Ile Leu Lys Lys Ser Val His Ser Val Ala Val Ile Gly Ala Pro
20           25           30

```

```

Phe Ser Gln Gly Gln Lys Arg Lys Gly Val Glu His Gly Pro Ala Ala

```

35

40

45

Ile Arg Glu Ala Gly Leu Met Lys Arg Leu Ser Ser Leu Gly Cys His  
 50 55 60

Leu Lys Asp Phe Gly Asp Leu Ser Phe Thr Pro Val Pro Lys Asp Asp  
 65 70 75 80

Leu Tyr Asn Asn Leu Ile Val Asn Pro Arg Ser Val Gly Leu Ala Asn  
 85 90 95

Gln Glu Leu Ala Glu Val Val Ser Arg Ala Val Ser Asp Gly Tyr Ser  
 100 105 110

Cys Val Thr Leu Gly Gly Asp His Ser Leu Ala Ile Gly Thr Ile Ser  
 115 120 125

Gly His Ala Arg His Cys Pro Asp Leu Cys Val Val Trp Val Asp Ala  
 130 135 140

His Ala Asp Ile Asn Thr Pro Leu Thr Thr Ser Ser Gly Asn Leu His  
 145 150 155 160

Gly Gln Pro Val Ser Phe Leu Leu Arg Glu Leu Gln Asp Lys Val Pro  
 165 170 175

Gln Leu Pro Gly Phe Ser Trp Ile Lys Pro Cys Ile Ser Ser Ala Ser  
 180 185 190

Ile Val Tyr Ile Gly Leu Arg Asp Val Asp Pro Pro Glu His Phe Ile  
 195 200 205

Leu Lys Asn Tyr Asp Ile Gln Tyr Phe Ser Met Arg Asp Ile Asp Arg  
 210 215 220

Leu Gly Ile Gln Lys Val Met Glu Arg Thr Phe Asp Leu Leu Ile Gly  
 225 230 235 240

Lys Arg Gln Arg Pro Ile His Leu Ser Phe Asp Ile Asp Ala Phe Asp  
 245 250 255

Pro Thr Leu Ala Pro Ala Thr Gly Thr Pro Val Val Gly Gly Leu Thr  
 260 265 270

Tyr Arg Glu Gly Met Tyr Ile Ala Glu Glu Ile His Asn Thr Gly Leu  
 275 280 285

Leu Ser Ala Leu Asp Leu Val Glu Val Asn Pro Gln Leu Ala Thr Ser  
 290 295 300

Glu Glu Glu Ala Lys Thr Thr Ala Asn Leu Ala Val Asp Val Ile Ala  
 305 310 315 320

Ser Ser Phe Gly Gln Thr Arg Glu Gly Gly His Ile Val Tyr Asp Gln  
 325 330 335

Leu Pro Thr Pro Ser Ser Pro Asp Glu Ser Glu Asn Gln Ala Arg Val  
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Arg Ile

<210> 151  
 <211> 1554  
 <212> DNA  
 <213> human organism

<400> 151  
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<210> 152
<211> 391
<212> PRT
<213> human organism

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<400> 152
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Met Glu Leu Val Ala Gly Cys Tyr Glu Gln Val Leu Phe Gly Phe Ala
1              5              10              15

```

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Val His Pro Glu Pro Lys Ala Cys Gly Asp His Glu Gln Trp Thr Leu
20              25              30

```

```

Val Ala Asp Phe Thr His His Ala His Thr Ala Ser Leu Ser Ala Val
35              40              45

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```

Ala Val Asn Ser Arg Phe Val Val Thr Gly Ser Lys Asp Glu Thr Ile
50              55              60

```

```

His Ile Tyr Asp Met Lys Lys Lys Ile Glu His Gly Ala Leu Val His
65              70              75              80

```

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His Ser Gly Thr Ile Thr Cys Leu Lys Phe Tyr Gly Asn Arg His Leu
85              90              95

```

Ile Ser Gly Ala Glu Asp Gly Leu Ile Cys Ile Trp Asp Ala Lys Lys  
100 105 110

Trp Glu Cys Leu Lys Ser Ile Lys Ala His Lys Gly Gln Val Thr Phe  
115 120 125

Leu Ser Ile His Pro Ser Gly Lys Leu Ala Leu Ser Val Gly Thr Asp  
130 135 140

Lys Thr Leu Arg Thr Trp Asn Leu Val Glu Gly Arg Ser Ala Phe Ile  
145 150 155 160

Lys Asn Ile Lys Gln Asn Ala His Ile Val Glu Trp Ser Pro Arg Gly  
165 170 175

Glu Gln Tyr Val Val Ile Ile Gln Asn Lys Ile Asp Ile Tyr Gln Leu  
180 185 190

Asp Thr Ala Ser Ile Ser Gly Thr Ile Thr Asn Glu Lys Arg Ile Ser  
195 200 205

Ser Val Lys Phe Leu Ser Glu Ser Val Leu Ala Val Ala Gly Asp Glu  
210 215 220

Glu Val Ile Arg Phe Phe Asp Cys Asp Ser Leu Val Cys Leu Cys Glu  
225 230 235 240

Phe Lys Ala His Glu Asn Arg Val Lys Asp Met Phe Ser Phe Glu Ile  
245 250 255

Pro Glu His His Val Ile Val Ser Ala Ser Ser Asp Gly Phe Ile Lys  
260 265 270

Met Trp Lys Leu Lys Gln Asp Lys Lys Val Pro Pro Ser Leu Leu Cys  
275 280 285

Glu Ile Asn Thr Asn Ala Arg Leu Thr Cys Leu Gly Val Trp Leu Asp  
290 295 300

Lys Val Ala Asp Met Lys Ser Leu Pro Pro Ala Ala Glu Pro Ser Pro  
305 310 315 320



Val Ser Lys Glu Gln Ser Lys Ile Gly Lys Lys Glu Pro Gly Asp Thr  
 325 330 335

Val His Lys Glu Glu Lys Arg Ser Lys Pro Asn Thr Lys Lys Arg Gly  
 340 345 350

Leu Thr Gly Asp Ser Lys Lys Ala Thr Lys Glu Ser Gly Leu Ile Ser  
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Thr Lys Lys Arg Lys Met Val Glu Met Leu Glu Lys Lys Arg Lys Lys  
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Lys Lys Ile Lys Thr Met Gln  
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 <211> 5285  
 <212> DNA  
 <213> human organism

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<400> 154

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His Gly Glu Ser Leu Pro Arg Ser Leu Arg Tyr Cys Asp Leu Arg Leu  
35 40 45

Ile Asn Ser Ser Cys Leu Val Arg Thr Ala Leu Glu Gln Glu Leu Gly  
50 55 60

Leu Ala Ala Tyr Phe Val Ser Asn Glu Val Pro Leu Glu Lys Gly Ala  
65 70 75 80

Arg Asn Glu Ala Leu Glu Ser Asp Ala Glu Lys Leu Ser Ser Thr Asp  
85 90 95

Asn Glu Asp Glu Glu Leu Gly Thr Glu Gly Ser Thr Ser Glu Lys Arg  
100 105 110

Ser Pro Met Lys Arg Glu Arg Ser Arg Ser His Asp Ser Ala Ser Ser  
115 120 125

Ser Leu Ser Ser Lys Ala Ser Gly Ser Ala Leu Gly Gly Glu Ser Ser  
130 135 140

Ala Gln Pro Thr Ala Leu Pro Gln Gly Glu His Ala Arg Ser Pro Gln  
145 150 155 160

Pro Arg Gly Pro Ala Glu Glu Gly Arg Ala Pro Gly Glu Lys Gln Arg  
165 170 175

Pro Arg Ala Ser Gln Gly Pro Pro Ser Ala Ile Ser Arg His Ser Pro  
180 185 190

Gly Pro Thr Pro Gln Pro Asp Cys Ser Leu Arg Thr Gly Gln Arg Ser  
195 200 205

Val Gln Val Ser Val Thr Ser Ser Cys Ser Gln Leu Ser Ser Ser Ser  
210 215 220

Gly Ser Ser Ser Ser Val Ala Pro Ala Ala Gly Thr Trp Val Leu  
225 230 235 240

Gln Ala Ser Gln Cys Ser Leu Thr Lys Ala Cys Arg Gln Pro Pro Ile  
245 250 255

Val Phe Leu Pro Lys Leu Val Tyr Asp Met Val Val Ser Thr Asp Ser  
260 265 270

Ser Gly Leu Pro Lys Ala Ala Ser Leu Leu Pro Ser Pro Ser Val Met  
275 280 285

Trp Ala Ser Ser Phe Arg Pro Leu Leu Ser Lys Thr Met Thr Ser Thr  
290 295 300

Glu Gln Ser Leu Tyr Tyr Arg Gln Trp Thr Val Pro Arg Pro Ser His  
305 310 315 320

Met Asp Tyr Gly Asn Arg Ala Glu Gly Arg Val Asp Gly Phe His Pro  
325 330 335

Arg Arg Leu Leu Leu Ser Gly Pro Pro Gln Ile Gly Lys Thr Gly Ala  
340 345 350

Tyr Leu Gln Phe Leu Ser Val Leu Ser Arg Met Leu Val Arg Leu Thr  
355 360 365

Glu Val Asp Val Tyr Asp Glu Glu Glu Ile Asn Ile Asn Leu Arg Glu  
370 375 380

Glu Ser Asp Trp His Tyr Leu Gln Leu Ser Asp Pro Trp Pro Asp Leu  
385 390 395 400

Glu Leu Phe Lys Lys Leu Pro Phe Asp Tyr Ile Ile His Asp Pro Lys  
405 410 415

Tyr Glu Asp Ala Ser Leu Ile Cys Ser His Tyr Gln Gly Ile Lys Ser  
420 425 430

Glu Asp Arg Gly Met Ser Arg Lys Pro Glu Asp Leu Tyr Val Arg Arg  
435 440 445

Gln Thr Ala Arg Met Arg Leu Ser Lys Tyr Ala Ala Tyr Asn Thr Tyr  
450 455 460

His His Cys Glu Gln Cys His Gln Tyr Met Gly Phe His Pro Arg Tyr  
465 470 475 480

Gln Leu Tyr Glu Ser Thr Leu His Ala Phe Ala Phe Ser Tyr Ser Met  
485 490 495

Leu Gly Glu Glu Ile Gln Leu His Phe Ile Ile Pro Lys Ser Lys Glu  
500 505 510

His His Phe Val Phe Ser Gln Pro Gly Gly Gln Leu Glu Ser Met Arg

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530					535					540					
Phe	Thr	Pro	Thr	Thr	Gly	Arg	His	Glu	His	Gly	Leu	Phe	Asn	Leu	Tyr
545					550					555					560
His	Ala	Met	Asp	Gly	Ala	Ser	His	Leu	His	Val	Leu	Val	Val	Lys	Glu
565					570					575					
Tyr	Glu	Met	Ala	Ile	Tyr	Lys	Lys	Tyr	Trp	Pro	Asn	His	Ile	Met	Leu
580					585					590					
Val	Leu	Pro	Ser	Ile	Phe	Asn	Ser	Ala	Gly	Val	Gly	Ala	Ala	His	Phe
595					600					605					
Leu	Ile	Lys	Glu	Leu	Ser	Tyr	His	Asn	Leu	Glu	Leu	Glu	Arg	Asn	Arg
610					615					620					
Gln	Glu	Glu	Leu	Gly	Ile	Lys	Pro	Gln	Asp	Ile	Trp	Pro	Phe	Ile	Val
625					630					635					640
Ile	Ser	Asp	Asp	Ser	Cys	Val	Met	Trp	Asn	Val	Val	Asp	Val	Asn	Ser
645					650					655					
Ala	Gly	Glu	Arg	Ser	Arg	Glu	Phe	Ser	Trp	Ser	Glu	Arg	Asn	Val	Ser
660					665					670					
Leu	Lys	His	Ile	Met	Gln	His	Ile	Glu	Ala	Ala	Pro	Asp	Ile	Met	His
675					680					685					
Tyr	Ala	Leu	Leu	Gly	Leu	Arg	Lys	Trp	Ser	Ser	Lys	Thr	Arg	Ala	Ser
690					695					700					
Glu	Val	Gln	Glu	Pro	Phe	Ser	Arg	Cys	His	Val	His	Asn	Phe	Ile	Ile
705					710					715					720
Leu	Asn	Val	Asp	Leu	Thr	Gln	Asn	Val	Gln	Tyr	Asn	Gln	Asn	Arg	Phe
725					730					735					
Leu	Cys	Asp	Asp	Val	Asp	Phe	Asn	Leu	Arg	Val	His	Ser	Ala	Gly	Leu
740					745					750					

Leu Leu Cys Arg Phe Asn Arg Phe Ser Val Met Lys Lys Gln Ile Val  
755 760 765

Val Gly Gly His Arg Ser Phe His Ile Thr Ser Lys Val Ser Asp Asn  
770 775 780

Ser Ala Ala Val Val Pro Ala Gln Tyr Ile Cys Ala Pro Asp Ser Lys  
785 790 795 800

His Thr Phe Leu Ala Ala Pro Ala Gln Leu Leu Leu Glu Lys Phe Leu  
805 810 815

Gln His His Ser His Leu Phe Phe Pro Leu Ser Leu Lys Asn His Asp  
820 825 830

His Pro Val Leu Ser Val Asp Cys Tyr Leu Asn Leu Gly Ser Gln Ile  
835 840 845

Ser Val Cys Tyr Val Ser Ser Arg Pro His Ser Leu Asn Ile Ser Cys  
850 855 860

Ser Asp Leu Leu Phe Ser Gly Leu Leu Leu Tyr Leu Cys Asp Ser Phe  
865 870 875 880

Val Gly Ala Ser Phe Leu Lys Lys Phe His Phe Leu Lys Gly Ala Thr  
885 890 895

Leu Cys Val Ile Cys Gln Asp Arg Ser Ser Leu Arg Gln Thr Val Val  
900 905 910

Arg Leu Glu Leu Glu Asp Glu Trp Gln Phe Arg Leu Arg Asp Glu Phe  
915 920 925

Gln Thr Ala Asn Ala Arg Glu Asp Arg Pro Leu Phe Phe Leu Thr Gly  
930 935 940

Arg His Ile  
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<211> 1167  
<212> DNA



<213> human organism

<400> 155

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gctgcagcag cggctgcagc ggcggcggtt gccggggccg ggggcggggg cttccccccac    180
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gccgccgcgg ccaaccagtg ccgcaacctg atggcgccacc cggcgccctt ggcgccagga    300
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tacgccacga ataaattcat tactaaggac aaacggaggc ggatatcagc cagcaggaat   1080
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<211> 388

<212> PRT

<213> human organism

<400> 156

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1           5           10           15
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Met Phe Leu Tyr Asp Asn Gly Gly Gly Leu Val Ala Asp Glu Leu Asn
          20           25           30
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Lys Asn Met Glu Gly Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala  
35 40 45

Ala Ala Ala Gly Ala Gly Gly Gly Gly Phe Pro His Pro Ala Ala Ala  
50 55 60

Ala Ala Gly Gly Asn Phe Ser Val Ala Ala Ala Ala Ala Ala Ala Ala  
65 70 75 80

Ala Ala Ala Ala Asn Gln Cys Arg Asn Leu Met Ala His Pro Ala Pro  
85 90 95

Leu Ala Pro Gly Ala Ala Ser Ala Tyr Ser Ser Ala Pro Gly Glu Ala  
100 105 110

Pro Pro Ser Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala Ala  
115 120 125

Ala Ala Ala Ala Ala Ser Ser Ser Gly Gly Pro Gly Pro Ala Gly Pro  
130 135 140

Ala Ala Ala Glu Ala Ala Lys Gln Cys Ser Pro Cys Ser Ala Ala Ala  
145 150 155 160

Gln Ser Ser Ser Gly Pro Ala Ala Leu Pro Tyr Gly Tyr Phe Gly Ser  
165 170 175

Gly Tyr Tyr Pro Cys Ala Arg Met Gly Pro Pro Pro Asn Ala Ile Lys  
180 185 190

Ser Cys Pro Gln Pro Pro Ser Ala Ala Ala Ala Ala Ala Phe Ala Asp  
195 200 205

Lys Tyr Met Asp Thr Ala Gly Pro Ala Ala Glu Glu Phe Ser Ser Arg  
210 215 220

Ala Lys Glu Phe Ala Phe Tyr His Gln Gly Tyr Ala Ala Gly Pro Tyr  
225 230 235 240

His His His Gln Pro Met Pro Gly Tyr Leu Asp Met Pro Val Val Pro  
245 250 255

Gly Leu Gly Gly Pro Gly Glu Ser Arg His Glu Pro Leu Gly Leu Pro  
 260 265 270

Met Glu Ser Tyr Gln Pro Trp Ala Leu Pro Asn Gly Trp Asn Gly Gln  
 275 280 285

Met Tyr Cys Pro Lys Glu Gln Ala Gln Pro Pro His Leu Trp Lys Ser  
 290 295 300

Thr Leu Pro Asp Val Val Ser His Pro Ser Asp Ala Ser Ser Tyr Arg  
 305 310 315 320

Arg Gly Arg Lys Lys Arg Val Pro Tyr Thr Lys Val Gln Leu Lys Glu  
 325 330 335

Leu Glu Arg Glu Tyr Ala Thr Asn Lys Phe Ile Thr Lys Asp Lys Arg  
 340 345 350

Arg Arg Ile Ser Ala Thr Thr Asn Leu Ser Glu Arg Gln Val Thr Ile  
 355 360 365

Trp Phe Gln Asn Arg Arg Val Lys Glu Lys Lys Val Ile Asn Lys Leu  
 370 375 380

Lys Thr Thr Ser  
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 <211> 3004  
 <212> DNA  
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aaaa 3004

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<211> 717
<212> PRT
<213> human organism

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<400> 158

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Met Phe Cys Thr Lys Leu Lys Asp Leu Lys Ile Thr Gly Glu Cys Pro
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Phe Ser Leu Leu Ala Pro Gly Gln Val Pro Asn Glu Ser Ser Glu Glu
          20           25           30

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Ala Ala Gly Ser Ser Glu Ser Cys Lys Ala Thr Val Pro Ile Cys Gln
          35           40           45

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Asp Ile Pro Glu Lys Asn Ile Gln Glu Ser Leu Pro Gln Arg Lys Thr
          50           55           60

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Ser Arg Ser Arg Val Tyr Leu His Thr Leu Ala Glu Ser Ile Cys Lys
65           70           75           80

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Leu Ile Phe Pro Glu Phe Glu Arg Leu Asn Val Ala Leu Gln Arg Thr  
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Leu Ala Lys His Lys Ile Lys Glu Ser Arg Lys Ser Leu Glu Arg Glu  
100 105 110

Asp Phe Glu Lys Thr Ile Ala Glu Gln Ala Val Gln Gln Ser Pro Val  
115 120 125

Glu Leu Ser Lys Asn Leu Leu Val Lys Arg Phe Leu Lys Tyr Val Thr  
130 135 140

Arg Lys Met Lys Thr Ser Leu Gly Trp Leu Glu Ala Pro Leu Lys Ile  
145 150 155 160

Phe Lys Gln Leu Gln Tyr Pro Ser Glu Thr Glu Gln Pro Leu Pro Arg  
165 170 175

Ser Arg Lys Lys Gly Gln Leu Glu Asp Ala Ser Ile Leu Cys Leu Asp  
180 185 190

Lys Glu Asp Asp Phe Leu His Val Tyr Tyr Phe Phe Pro Lys Arg Thr  
195 200 205

Thr Ser Leu Ile Leu Pro Gly Ile Ile Lys Ala Ala Ala His Val Leu  
210 215 220

Tyr Glu Thr Glu Val Glu Val Ser Leu Met Pro Pro Cys Phe His Asn  
225 230 235 240

Asp Cys Ser Glu Phe Val Asn Gln Pro Tyr Leu Leu Tyr Ser Val His  
245 250 255

Met Lys Ser Thr Lys Pro Ser Leu Ser Pro Ser Lys Pro Gln Ser Ser  
260 265 270

Leu Val Ile Pro Thr Ser Leu Phe Cys Lys Thr Phe Pro Phe His Phe  
275 280 285

Met Phe Asp Lys Asp Met Thr Ile Leu Gln Phe Gly Asn Gly Ile Arg  
290 295 300

Arg Leu Met Asn Arg Arg Asp Phe Gln Gly Lys Pro Asn Phe Glu Tyr  
305 310 315 320

Phe Glu Ile Leu Thr Pro Lys Ile Asn Gln Thr Phe Ser Gly Ile Met  
325 330 335

Thr Met Leu Asn Met Gln Phe Val Val Arg Val Arg Arg Trp Asp Asn  
340 345 350

Ser Val Lys Lys Ser Ser Arg Val Met Asp Leu Lys Gly Gln Met Ile  
355 360 365

Tyr Ile Val Glu Ser Ser Ala Ile Leu Phe Leu Gly Ser Pro Cys Val  
370 375 380

Asp Arg Leu Glu Asp Phe Thr Gly Arg Gly Leu Tyr Leu Ser Asp Ile  
385 390 395 400

Pro Ile His Asn Ala Leu Arg Asp Val Val Leu Ile Gly Glu Gln Ala  
405 410 415

Arg Ala Gln Asp Gly Leu Lys Lys Arg Leu Gly Lys Leu Lys Ala Thr  
420 425 430

Leu Glu Gln Ala His Gln Ala Leu Glu Glu Glu Lys Lys Lys Thr Val  
435 440 445

Asp Leu Leu Cys Ser Ile Phe Pro Cys Glu Val Ala Gln Gln Leu Trp  
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Gln Gly Gln Val Val Gln Ala Lys Lys Phe Ser Asn Val Thr Met Leu  
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Phe Ser Asp Ile Val Gly Phe Thr Ala Ile Cys Ser Gln Cys Ser Pro  
485 490 495

Leu Gln Val Ile Thr Met Leu Asn Ala Leu Tyr Thr Arg Phe Asp Gln  
500 505 510

Gln Cys Gly Glu Leu Asp Val Tyr Lys Val Glu Thr Ile Ala Met Pro  
515 520 525

Ile Val Trp Leu Gly Gly Leu His Lys Glu Ser Asp Thr His Ala Val  
530 535 540

Gln Ile Ala Leu Met Ala Leu Lys Met Met Glu Leu Ser Asp Glu Val  
545 550 555 560

Met Ser Pro His Gly Glu Pro Ile Lys Met Arg Ile Gly Leu His Ser  
565 570 575

Gly Ser Val Phe Ala Gly Val Val Gly Val Lys Met Pro Arg Tyr Cys  
580 585 590

Leu Phe Gly Asn Asn Val Thr Leu Ala Asn Lys Phe Glu Ser Cys Ser  
595 600 605

Val Pro Arg Lys Ile Asn Val Ser Pro Thr Thr Tyr Arg Leu Leu Lys  
610 615 620

Asp Cys Pro Gly Phe Val Phe Thr Pro Arg Ser Arg Glu Glu Leu Pro  
625 630 635 640

Pro Asn Phe Pro Ser Glu Ile Pro Gly Ile Cys His Phe Leu Asp Ala  
645 650 655

Tyr Gln Gln Gly Thr Asn Ser Lys Pro Cys Phe Gln Lys Lys Asp Val  
660 665 670

Glu Asp Ala Ser Gln Phe Phe Arg Gln Ser Ile Arg Asn Arg Leu Ala  
675 680 685

Thr Tyr Ile Pro Ile Tyr Lys Ser Leu Gly Phe Asp Ser Leu Lys Met  
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Cys Arg Ala Ser Glu Ser Thr Leu Gly Ile Val Asp Gly  
705 710 715

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<400> 160

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Glu Asn Ser Glu Glu Ile Asp Val Asn Glu Ser Glu Leu Ser Ser Glu  
35 40 45

Ile Lys Tyr Lys Thr Pro Gln Pro Ile Gly Glu Val Tyr Phe Ala Glu  
50 55 60

Thr Phe Asp Ser Gly Arg Leu Ala Gly Trp Val Leu Ser Lys Ala Lys

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Asp Ser Ser Val Val Lys Pro Ala Gly Trp Leu Asp Asp Glu Pro Lys  
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Phe Ile Pro Asp Pro Asn Ala Glu Lys Pro Asp Asp Trp Asn Glu Asp  
325 330 335

Thr Asp Gly Glu Trp Glu Ala Pro Gln Ile Leu Asn Pro Ala Cys Arg  
340 345 350

Ile Gly Cys Gly Glu Trp Lys Pro Pro Met Ile Asp Asn Pro Lys Tyr  
355 360 365

Lys Gly Val Trp Arg Pro Pro Leu Val Asp Asn Pro Asn Tyr Gln Gly  
370 375 380

Ile Trp Ser Pro Arg Lys Ile Pro Asn Pro Asp Tyr Phe Glu Asp Asp  
385 390 395 400

His Pro Phe Leu Leu Thr Ser Phe Ser Ala Leu Gly Leu Glu Leu Trp  
405 410 415

Ser Met Thr Ser Asp Ile Tyr Phe Asp Asn Phe Ile Ile Cys Ser Glu  
420 425 430

Lys Glu Val Ala Asp His Trp Ala Ala Asp Gly Trp Arg Trp Lys Ile  
435 440 445

Met Ile Ala Asn Ala Asn Lys Pro Gly Val Leu Lys Gln Leu Met Ala  
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Ala Ala Glu Gly His Pro Trp Leu Trp Leu Ile Tyr Leu Val Thr Ala  
465 470 475 480

Gly Val Pro Ile Ala Leu Ile Thr Ser Phe Cys Trp Pro Arg Lys Val  
485 490 495

Lys Lys Lys His Lys Asp Thr Glu Tyr Lys Lys Thr Asp Ile Cys Ile  
500 505 510

Pro Gln Thr Lys Gly Val Leu Glu Gln Glu Glu Lys Glu Glu Lys Ala  
515 520 525

Ala Leu Glu Lys Pro Met Asp Leu Glu Glu Glu Lys Lys Gln Asn Asp  
530 535 540

Gly Glu Met Leu Glu Lys Glu Glu Glu Ser Glu Pro Glu Glu Lys Ser  
545 550 555 560

Glu Glu Glu Ile Glu Ile Ile Glu Gly Gln Glu Glu Ser Asn Gln Ser  
565 570 575

Asn Lys Ser Gly Ser Glu Asp Glu Met Lys Glu Ala Asp Glu Ser Thr  
580 585 590

Gly Ser Gly Asp Gly Pro Ile Lys Ser Val Arg Lys Arg Arg Val Arg  
595 600 605

Lys Asp  
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<211> 713



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Leu Pro Pro Arg Arg Ala Gly Arg Gly Ser Leu Glu Ala Gly Ile Arg  
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Ala Arg Arg Val Ser Thr Ser Trp Ser Pro Val Gly Ala Ala Phe Asn  
35 40 45

Val Lys Pro Gln Gly Ser Arg Leu Asp Leu Phe Gly Glu Arg Ala Arg  
50 55 60

Leu Phe Gly Val Pro Glu Leu Ser Ala Pro Glu Gly Phe His Ile Ala  
65 70 75 80

Gln Glu Lys Ala Leu Arg Lys Thr Glu Leu Leu Val Asp Arg Ala Cys  
85 90 95

Ser Thr Pro Pro Gly Pro Gln Thr Val Leu Ile Phe Asp Glu Leu Ser  
100 105 110

Asp Ser Leu Cys Arg Val Ala Asp Leu Ala Asp Phe Val Lys Ile Ala  
115 120 125

His Pro Glu Pro Ala Phe Arg Glu Ala Ala Glu Glu Ala Cys Arg Ser  
130 135 140

Ile Gly Thr Met Val Glu Lys Leu Asn Thr Asn Val Asp Leu Tyr Gln  
145 150 155 160

Ser Leu Gln Lys Leu Leu Ala Asp Lys Lys Leu Val Asp Ser Leu Asp  
165 170 175

Pro Glu Thr Arg Arg Val Ala Glu Leu Phe Met Phe Asp Phe Glu Ile  
180 185 190

Ser Gly Ile His Leu Asp Lys Gln Lys Arg Lys Arg Ala Val Asp Leu  
195 200 205

Asn Val Lys Ile Leu Asp Leu Ser Ser Thr Phe Leu Met Gly Thr Asn  
210 215 220

Phe Pro Asn Lys Ile Glu Lys His Leu Leu Pro Glu His Ile Arg Arg  
225 230 235 240

Asn Phe Thr Ser Ala Gly Asp His Ile Ile Ile Asp Gly Leu His Ala  
245 250 255

Glu Ser Pro Asp Asp Leu Val Arg Glu Ala Ala Tyr Lys Ile Phe Leu  
260 265 270

Tyr Pro Asn Ala Gly Gln Leu Lys Cys Leu Glu Glu Leu Leu Ser Ser  
275 280 285

Arg Asp Leu Leu Ala Lys Leu Val Gly Tyr Ser Thr Phe Ser His Arg  
290 295 300

Ala Leu Gln Gly Thr Ile Ala Lys Asn Pro Glu Thr Val Met Gln Phe  
305 310 315 320

Leu Glu Lys Leu Ser Asp Lys Leu Ser Glu Arg Thr Leu Lys Asp Phe  
325 330 335

Glu Met Ile Arg Gly Met Lys Met Lys Leu Asn Ala Gln Asn Ser Glu  
340 345 350

Val Met Pro Trp Asp Pro Pro Tyr Tyr Ser Gly Val Ile Arg Ala Glu  
355 360 365

Arg Tyr Asn Ile Glu Pro Ser Leu Tyr Cys Pro Phe Phe Ser Leu Gly  
370 375 380

Ala Cys Met Glu Gly Leu Asn Ile Leu Leu Asn Arg Leu Leu Gly Ile  
385 390 395 400

Ser Leu Tyr Ala Glu Gln Pro Ala Lys Gly Glu Val Trp Ser Glu Asp  
405 410 415

Val Arg Lys Leu Ala Val Val His Glu Ser Glu Gly Leu Leu Gly Tyr  
420 425 430

Ile Tyr Cys Asp Phe Phe Gln Arg Ala Asp Lys Pro His Gln Asp Cys



435	440	445
His Phe Thr Ile Arg Gly Gly Arg Leu Lys Glu Asp Gly Asp Tyr Gln		
450	455	460
Leu Pro Leu Val Val Leu Met Leu Asn Leu Pro Arg Ser Ser Arg Ser		
465	470	475 480
Ser Pro Thr Leu Leu Thr Pro Gly Met Met Glu Asn Leu Phe His Glu		
485	490	495
Met Gly His Ala Met His Ser Met Leu Gly Arg Thr Arg Tyr Gln His		
500	505	510
Val Thr Gly Thr Arg Cys Pro Thr Asp Phe Ala Glu Val Pro Ser Ile		
515	520	525
Leu Met Glu Tyr Phe Ala Asn Asp Tyr Arg Val Val Asn Gln Phe Ala		
530	535	540
Arg His Tyr Gln Thr Gly Gln Pro Leu Pro Lys Asn Met Val Ser Arg		
545	550	555 560
Leu Cys Glu Ser Lys Lys Val Cys Ala Ala Ala Asp Met Gln Leu Gln		
565	570	575
		0
Val Phe Tyr Ala Thr Leu Asp Gln Ile Tyr His Gly Lys His Pro Leu		
580	585	590
Arg Asn Ser Thr Thr Asp Ile Leu Lys Glu Thr Gln Glu Lys Phe Tyr		
595	600	605
Gly Leu Pro Tyr Val Pro Asn Thr Ala Trp Gln Leu Arg Phe Ser His		
610	615	620
Leu Val Gly Tyr Gly Ala Arg Tyr Tyr Ser Tyr Leu Met Ser Arg Ala		
625	630	635 640
Val Ala Ser Met Val Trp Lys Glu Cys Phe Leu Gln Asp Pro Phe Asn		
645	650	655
Arg Ala Ala Gly Glu Arg Tyr Arg Arg Glu Met Leu Ala His Gly Gly		
660	665	670

Gly Arg Glu Pro Met Leu Met Val Glu Gly Met Leu Gln Lys Cys Pro  
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Ser Val Asp Asp Phe Val Ser Ala Leu Val Ser Asp Leu Asp Leu Asp  
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Phe Glu Thr Phe Leu Met Asp Ser Glu  
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<211> 3923  
<212> DNA  
<213> human organism

<400> 163  
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Val Val Gly Met Gly Ile Val Met Ser Leu Ile Val Leu Ala Ile Val  
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Phe Gly Asn Val Leu Val Ile Thr Ala Ile Ala Lys Phe Glu Arg Leu  
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Gln Thr Val Thr Asn Tyr Phe Ile Thr Ser Leu Ala Cys Ala Asp Leu  
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Val Met Gly Leu Ala Val Val Pro Phe Gly Ala Ala His Ile Leu Met  
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Lys Met Trp Thr Phe Gly Asn Phe Trp Cys Glu Phe Trp Thr Ser Ile  
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Asp Val Leu Cys Val Thr Ala Ser Ile Glu Thr Leu Cys Val Ile Ala  
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Val Asp Arg Tyr Phe Ala Ile Thr Ser Pro Phe Lys Tyr Gln Ser Leu  
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Leu Thr Lys Asn Lys Ala Arg Val Ile Ile Leu Met Val Trp Ile Val  
145 150 155 160

Ser Gly Leu Thr Ser Phe Leu Pro Ile Gln Met His Trp Tyr Arg Ala  
165 170 175

Thr His Gln Glu Ala Ile Asn Cys Tyr Ala Asn Glu Thr Cys Cys Asp  
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Phe Phe Thr Asn Gln Ala Tyr Ala Ile Ala Ser Ser Ile Val Ser Phe  
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Tyr Val Pro Leu Val Ile Met Val Phe Val Tyr Ser Arg Val Phe Gln  
210 215 220

Glu Ala Lys Arg Gln Leu Gln Lys Ile Asp Lys Ser Glu Gly Arg Phe  
225 230 235 240

His Val Gln Asn Leu Ser Gln Val Glu Gln Asp Gly Arg Thr Gly His  
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Gly Leu Arg Arg Ser Ser Lys Phe Cys Leu Lys Glu His Lys Ala Leu  
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Lys Thr Leu Gly Ile Ile Met Gly Thr Phe Thr Leu Cys Trp Leu Pro  
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Phe Phe Ile Val Asn Ile Val His Val Ile Gln Asp Asn Leu Ile Arg  
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Lys Glu Val Tyr Ile Leu Leu Asn Trp Ile Gly Tyr Val Asn Ser Gly  
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Phe Asn Pro Leu Ile Tyr Cys Arg Ser Pro Asp Phe Arg Ile Ala Phe  
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Gln Glu Leu Leu Cys Leu Arg Arg Ser Ser Leu Lys Ala Tyr Gly Asn  
340 345 350

Gly Tyr Ser Ser Asn Gly Asn Thr Gly Glu Gln Ser Gly Tyr His Val  
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Glu Gln Glu Lys Glu Asn Lys Leu Leu Cys Glu Asp Leu Pro Gly Thr  
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Glu Asp Phe Val Gly His Gln Gly Thr Val Pro Ser Asp Asn Ile Asp  
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<211> 3741

<212> DNA

<213> human organism

<400> 168

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 <213> human organism

<400> 169

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Tyr Thr Ile Leu Thr Tyr Ile Pro Phe Tyr Phe Phe Ser Glu Ser Arg  
 35 40 45

Gln Glu Lys Ser Asn Arg Ile Lys Ala Lys Pro Val Asn Ser Lys Pro  
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Asp Ser Ala Tyr Arg Ser Val Asn Ser Leu Asp Gly Leu Ala Ser Val  
 65 70 75 80

Leu Tyr Pro Gly Cys Asp Thr Leu Asp Lys Val Phe Thr Tyr Ala Lys  
 85 90 95

Asn Lys Phe Lys Asn Lys Arg Leu Leu Gly Thr Arg Glu Val Leu Asn  
 100 105 110

Glu Glu Asp Glu Val Gln Pro Asn Gly Lys Ile Phe Lys Lys Val Ile  
 115 120 125

Leu Gly Gln Tyr Asn Trp Leu Ser Tyr Glu Asp Val Phe Val Arg Ala  
 130 135 140

Phe Asn Phe Gly Asn Gly Leu Gln Met Leu Gly Gln Lys Pro Lys Thr  
 145 150 155 160

Asn Ile Ala Ile Phe Cys Glu Thr Arg Ala Glu Trp Met Ile Ala Ala  
 165 170 175

Gln Ala Cys Phe Met Tyr Asn Phe Gln Leu Val Thr Leu Tyr Ala Thr  
180 185 190

Leu Gly Gly Pro Ala Ile Val His Ala Leu Asn Glu Thr Glu Val Thr  
195 200 205

Asn Ile Ile Thr Ser Lys Glu Leu Leu Gln Thr Lys Leu Lys Asp Ile  
210 215 220

Val Ser Leu Val Pro Arg Leu Arg His Ile Ile Thr Val Asp Gly Lys  
225 230 235 240

Pro Pro Thr Trp Ser Asp Phe Pro Lys Gly Ile Ile Val His Thr Met  
245 250 255

Ala Ala Val Glu Ala Leu Gly Ala Lys Ala Ser Met Glu Asn Gln Pro  
260 265 270

His Ser Lys Pro Leu Pro Ser Asp Ile Ala Val Ile Met Tyr Thr Ser  
275 280 285

Gly Ser Thr Gly Leu Pro Lys Gly Val Met Ile Ser His Ser Asn Ile  
290 295 300

Ile Ala Gly Ile Thr Gly Met Ala Glu Arg Ile Pro Glu Leu Gly Glu  
305 310 315 320

Glu Asp Val Tyr Ile Gly Tyr Leu Pro Leu Ala His Val Leu Glu Leu  
325 330 335

Ser Ala Glu Leu Val Cys Leu Ser His Gly Cys Arg Ile Gly Tyr Ser  
340 345 350

Ser Pro Gln Thr Leu Ala Asp Gln Ser Ser Lys Ile Lys Lys Gly Ser  
355 360 365

Lys Gly Asp Thr Ser Met Leu Lys Pro Thr Leu Met Ala Ala Val Pro  
370 375 380

Glu Ile Met Asp Arg Ile Tyr Lys Asn Val Met Asn Lys Val Ser Glu  
385 390 395 400

Met Ser Ser Phe Gln Arg Asn Leu Phe Ile Leu Ala Tyr Asn Tyr Lys  
405 410 415

Met Glu Gln Ile Ser Lys Gly Arg Asn Thr Pro Leu Cys Asp Ser Phe  
420 425 430

Val Phe Arg Lys Val Arg Ser Leu Leu Gly Gly Asn Ile Arg Leu Leu  
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Leu Cys Gly Gly Ala Pro Leu Ser Ala Thr Thr Gln Arg Phe Met Asn  
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Ile Cys Phe Cys Cys Pro Val Gly Gln Gly Tyr Gly Leu Thr Glu Ser  
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Ala Gly Ala Gly Thr Ile Ser Glu Val Trp Asp Tyr Asn Thr Gly Arg  
485 490 495

Val Gly Ala Pro Leu Val Cys Cys Glu Ile Lys Leu Lys Asn Trp Glu  
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Glu Gly Gly Tyr Phe Asn Thr Asp Lys Pro His Pro Arg Gly Glu Ile  
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Leu Ile Gly Gly Gln Ser Val Thr Met Gly Tyr Tyr Lys Asn Glu Ala  
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Lys Thr Lys Ala Asp Phe Ser Glu Asp Glu Asn Gly Gln Arg Trp Leu  
545 550 555 560

Cys Thr Gly Asp Ile Gly Glu Phe Glu Pro Asp Gly Cys Leu Lys Ile  
565 570 575

Ile Asp Arg Lys Lys Asp Leu Val Lys Leu Gln Ala Gly Glu Tyr Val  
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Ser Leu Gly Lys Val Glu Ala Ala Leu Lys Asn Leu Pro Leu Val Asp  
595 600 605

Asn Ile Cys Ala Tyr Ala Asn Ser Tyr His Ser Tyr Val Ile Gly Phe  
610 615 620

Val Val Pro Asn Gln Lys Glu Leu Thr Glu Leu Ala Arg Lys Lys Gly

625

630

635

640

Leu Lys Gly Thr Trp Glu Glu Leu Cys Asn Ser Cys Glu Met Glu Asn  
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Glu Val Leu Lys Val Leu Ser Glu Ala Ala Ile Ser Ala Ser Leu Glu  
 660 665 670

Lys Phe Glu Ile Pro Val Lys Ile Arg Leu Ser Pro Glu Pro Trp Thr  
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Pro Glu Thr Gly Leu Val Thr Asp Ala Phe Lys Leu Lys Arg Lys Glu  
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Leu Lys Thr His Tyr Gln Ala Asp Ile Glu Arg Met Tyr Gly Arg Lys  
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&lt;210&gt; 170

&lt;211&gt; 4121

&lt;212&gt; DNA

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&lt;400&gt; 170

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<213> human organism

<400> 171

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Gly Asn Phe Met Cys Ser Asn Gly Arg Cys Ile Pro Gly Ala Trp Gln  
35 40 45

Cys Asp Gly Leu Pro Asp Cys Phe Asp Lys Ser Asp Glu Lys Glu Cys  
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Pro Lys Ala Lys Ser Lys Cys Gly Pro Thr Phe Phe Pro Cys Ala Ser  
65 70 75 80

Gly Ile His Cys Ile Ile Gly Arg Phe Arg Cys Asn Gly Phe Glu Asp  
85 90 95

Cys Pro Asp Gly Ser Asp Glu Glu Asn Cys Thr Ala Asn Pro Leu Leu  
100 105 110

Cys Ser Thr Ala Arg Tyr His Cys Lys Asn Gly Leu Cys Ile Asp Lys  
115 120 125

Ser Phe Ile Cys Asp Gly Gln Asn Asn Cys Gln Asp Asn Ser Asp Glu  
130 135 140

Glu Ser Cys Glu Ser Ser Gln Glu Pro Gly Ser Gly Gln Val Phe Val  
145 150 155 160

Thr Ser Glu Asn Gln Leu Val Tyr Tyr Pro Ser Ile Thr Tyr Ala Ile  
165 170 175

Ile Gly Ser Ser Val Ile Phe Val Leu Val Val Ala Leu Leu Ala Leu  
180 185 190

Val Leu His His Gln Arg Lys Arg Asn Asn Leu Met Thr Leu Pro Val  
195 200 205

His Arg Leu Gln His Pro Val Leu Leu Ser Arg Leu Val Val Leu Asp

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Pro Ser Tyr Ser Glu Ala Leu Leu Asp Gln Arg Pro Ala Trp Tyr Asp		
	260	265 270
Leu Pro Pro Pro Pro Tyr Ser Ser Asp Thr Glu Ser Leu Asn Gln Ala		
	275	280 285
Asp Leu Pro Pro Tyr Arg Ser Arg Ser Gly Ser Ala Asn Ser Ala Ser		
	290	300
Ser Gln Ala Ala Ser Ser Leu Leu Ser Val Glu Asp Thr Ser His Ser		
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Pro Gly Gln Pro Gly Pro Gln Glu Gly Thr Ala Glu Pro Arg Asp Ser		
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Glu Pro Ser Gln Gly Thr Glu Glu Val		
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<400> 173

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35 40 45

Val Pro Gln Tyr Ala Pro Arg Val Leu Thr Gln Ala Ser Asn Pro Val  
50 55 60

Val Cys Thr Gln Pro Lys Ser Pro Ser Gly Thr Val Cys Thr Ser Lys  
65 70 75 80

Thr Lys Lys Ala Leu Cys Ile Thr Leu Thr Leu Gly Thr Phe Leu Val  
85 90 95

Gly Ala Ala Leu Ala Ala Gly Leu Leu Trp Lys Phe Met Gly Ser Lys  
100 105 110

Cys Ser Asn Ser Gly Ile Glu Cys Asp Ser Ser Gly Thr Cys Ile Asn  
115 120 125

Pro Ser Asn Trp Cys Asp Gly Val Ser His Cys Pro Gly Gly Glu Asp  
130 135 140

Glu Asn Arg Cys Val Arg Leu Tyr Gly Pro Asn Phe Ile Leu Gln Met  
145 150 155 160

Tyr Ser Ser Gln Arg Lys Ser Trp His Pro Val Cys Gln Asp Asp Trp  
165 170 175

Asn Glu Asn Tyr Gly Arg Ala Ala Cys Arg Asp Met Gly Tyr Lys Asn  
180 185 190

Asn Phe Tyr Ser Ser Gln Gly Ile Val Asp Asp Ser Gly Ser Thr Ser  
195 200 205

Phe Met Lys Leu Asn Thr Ser Ala Gly Asn Val Asp Ile Tyr Lys Lys  
210 215 220

Leu Tyr His Ser Asp Ala Cys Ser Ser Lys Ala Val Val Ser Leu Arg  
225 230 235 240

Cys Leu Ala Cys Gly Val Asn Leu Asn Ser Ser Arg Gln Ser Arg Ile  
245 250 255

Val Gly Gly Glu Ser Ala Leu Pro Gly Ala Trp Pro Trp Gln Val Ser  
260 265 270

Leu His Val Gln Asn Val His Val Cys Gly Gly Ser Ile Ile Thr Pro  
275 280 285

Glu Trp Ile Val Thr Ala Ala His Cys Val Glu Lys Pro Leu Asn Asn  
290 295 300

Pro Trp His Trp Thr Ala Phe Ala Gly Ile Leu Arg Gln Ser Phe Met  
305 310 315 320

Phe Tyr Gly Ala Gly Tyr Gln Val Gln Lys Val Ile Ser His Pro Asn  
325 330 335

Tyr Asp Ser Lys Thr Lys Asn Asn Asp Ile Ala Leu Met Lys Leu Gln  
340 345 350

Lys Pro Leu Thr Phe Asn Asp Leu Val Lys Pro Val Cys Leu Pro Asn  
355 360 365

Pro Gly Met Met Leu Gln Pro Glu Gln Leu Cys Trp Ile Ser Gly Trp  
370 375 380

Gly Ala Thr Glu Glu Lys Gly Lys Thr Ser Glu Val Leu Asn Ala Ala  
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Lys Val Leu Leu Ile Glu Thr Gln Arg Cys Asn Ser Arg Tyr Val Tyr  
 405 410 415

Asp Asn Leu Ile Thr Pro Ala Met Ile Cys Ala Gly Phe Leu Gln Gly  
 420 425 430

Asn Val Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Thr Ser  
 435 440 445

Asn Asn Asn Ile Trp Trp Leu Ile Gly Asp Thr Ser Trp Gly Ser Gly  
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Cys Ala Lys Ala Tyr Arg Pro Gly Val Tyr Gly Asn Val Met Val Phe  
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Thr Asp Trp Ile Tyr Arg Gln Met Lys Ala Asn Gly  
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<211> 317  
<212> PRT  
<213> human organism

<400> 175

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Leu Cys Ser Leu Tyr Leu Ile Ala Val Leu Gly Asn Leu Thr Ile Ile  
35 40 45

Tyr Ile Val Arg Thr Glu His Ser Leu His Glu Pro Met Tyr Ile Phe  
50 55 60

Leu Cys Met Leu Ser Gly Ile Asp Ile Leu Ile Ser Thr Ser Ser Met  
65 70 75 80

Pro Lys Met Leu Ala Ile Phe Trp Phe Asn Ser Thr Thr Ile Gln Phe  
85 90 95

Asp Ala Cys Leu Leu Gln Met Phe Ala Ile His Ser Leu Ser Gly Met  
100 105 110

Glu Ser Thr Val Leu Leu Ala Met Ala Phe Asp Arg Tyr Val Ala Ile  
115 120 125

Cys His Pro Leu Arg His Ala Thr Val Leu Thr Leu Pro Arg Val Thr  
 130 135 140

Lys Ile Gly Val Ala Ala Val Val Arg Gly Ala Ala Leu Met Ala Pro  
 145 150 155 160

Leu Pro Val Phe Ile Lys Gln Leu Pro Phe Cys Arg Ser Asn Ile Leu  
 165 170 175

Ser His Ser Tyr Cys Leu His Gln Asp Val Met Lys Leu Ala Cys Asp  
 180 185 190

Asp Ile Arg Val Asn Val Val Tyr Gly Leu Ile Val Ile Ile Ser Ala  
 195 200 205

Ile Gly Leu Asp Ser Leu Leu Ile Ser Phe Ser Tyr Leu Leu Ile Leu  
 210 215 220

Lys Thr Val Leu Gly Leu Thr Arg Glu Ala Gln Ala Lys Ala Phe Gly  
 225 230 235 240

Thr Cys Val Ser His Val Cys Ala Val Phe Ile Phe Tyr Val Pro Phe  
 245 250 255

Ile Gly Leu Ser Met Val His Arg Phe Ser Lys Arg Arg Asp Ser Pro  
 260 265 270

Leu Pro Val Ile Leu Ala Asn Ile Tyr Leu Leu Val Pro Pro Val Leu  
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Asn Pro Ile Val Tyr Gly Val Lys Thr Lys Glu Ile Arg Gln Arg Ile  
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Leu Arg Leu Phe His Val Ala Thr His Ala Ser Glu Pro  
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<210> 176

<211> 2834

<212> DNA

<213> human organism

<400> 176

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<400> 177

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Gly Gly Arg Gly Gly Ser Arg Gly Ala Gly Gly Gly Gly Arg Gly Gly  
35 40 45

Val Ala Arg Arg Arg Arg Leu Glu Leu Arg Ala Ala Arg Ser Leu Leu  
50 55 60

Gly Ser Ser Leu Gln Glu Glu Cys Asp Tyr Val Gln Met Ile Glu Val  
65 70 75 80

Gln His Lys Gln Cys Leu Glu Glu Ala Gln Leu Glu Asn Glu Thr Ile  
85 90 95

Gly Cys Ser Lys Met Trp Asp Asn Leu Thr Cys Trp Pro Ala Thr Pro  
100 105 110

Arg Gly Gln Val Val Val Leu Ala Cys Pro Leu Ile Phe Lys Leu Phe  
115 120 125

Ser Ser Ile Gln Gly Arg Asn Val Ser Arg Ser Cys Thr Asp Glu Gly  
130 135 140

Trp Thr His Leu Glu Pro Gly Pro Tyr Pro Ile Ala Cys Gly Leu Asp  
145 150 155 160

Asp Lys Ala Ala Ser Leu Asp Glu Gln Gln Thr Met Phe Tyr Gly Ser  
165 170 175

Val Lys Thr Gly Tyr Thr Ile Gly Tyr Gly Leu Ser Leu Ala Thr Leu  
180 185 190

Leu Val Ala Thr Ala Ile Leu Ser Leu Phe Arg Lys Leu His Cys Thr  
195 200 205

Arg Asn Tyr Ile His Met His Leu Phe Ile Ser Phe Ile Leu Arg Ala  
210 215 220

Ala Ala Val Phe Ile Lys Asp Leu Ala Leu Phe Asp Ser Gly Glu Ser  
225 230 235 240

Asp Gln Cys Ser Glu Gly Ser Val Gly Cys Lys Ala Ala Met Val Phe  
245 250 255

Phe Gln Tyr Cys Val Met Ala Asn Phe Phe Trp Leu Leu Val Glu Gly  
260 265 270

Leu Tyr Leu Tyr Thr Leu Leu Ala Val Ser Phe Phe Ser Glu Arg Lys  
275 280 285

Tyr Phe Trp Gly Tyr Ile Leu Ile Gly Trp Gly Val Pro Ser Thr Phe  
290 295 300

Thr Met Val Trp Thr Ile Ala Arg Ile His Phe Glu Asp Tyr Gly Leu  
305 310 315 320

Leu Arg Cys Trp Asp Thr Ile Asn Ser Ser Leu Trp Trp Ile Ile Lys  
325 330 335

Gly Pro Ile Leu Thr Ser Ile Leu Val Asn Phe Ile Leu Phe Ile Cys  
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Ile Ile Arg Ile Leu Leu Gln Lys Leu Arg Pro Pro Asp Ile Arg Lys  
355 360 365

Ser Asp Ser Ser Pro Tyr Ser Arg Leu Ala Arg Ser Thr Leu Leu Leu  
370 375 380

Ile Pro Leu Phe Gly Val His Tyr Ile Met Phe Ala Phe Phe Pro Asp  
385 390 395 400

Asn Phe Lys Pro Glu Val Lys Met Val Phe Glu Leu Val Val Gly Ser  
405 410 415

Phe Gln Gly Phe Val Val Ala Ile Leu Tyr Cys Phe Leu Asn Gly Glu  
420 425 430

Val Gln Ala Glu Leu Arg Arg Lys Trp Arg Arg Trp His Leu Gln Gly  
435 440 445

Val Leu Gly Trp Asn Pro Lys Tyr Arg His Pro Ser Gly Gly Ser Asn  
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<210> 178



<211> 2070

<212> DNA

<213> human organism

<400> 178

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<400> 179

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			20					25					30		
Ser	Leu	Arg	Pro	Gln	Ser	Pro	Gln	Leu	Arg	Gln	Ser	Asp	Pro	Gln	Lys
		35					40					45			
Arg	Asn	Leu	Asp	Leu	Glu	Lys	Ser	Leu	Gln	Phe	Leu	Gln	Gln	Gln	His
	50					55				60					
Ser	Glu	Met	Leu	Ala	Lys	Leu	His	Glu	Glu	Ile	Glu	His	Leu	Lys	Arg
65					70				75					80	
Glu	Asn	Lys	Gly	Glu	Pro	Ala	Arg	Gly	Pro	Arg	Pro	Ala	Leu	Pro	Pro
			85					90						95	
Gln	Ala	His	Ser	Thr	Leu	Pro	Leu	Pro	Gln	His	Arg	Asn	Thr	Ala	Ile
			100					105					110		
Asn	Ser	Ser	Thr	Arg	Leu	Gly	Ser	Gly	Gly	Thr	Gln	Asp	Gly	Glu	Pro
			115				120					125			

Leu Gln Thr Val Leu Ala His Leu Ala Ala Leu Ala Pro Val Cys Gln  
130 135 140

Pro Ser Gly Tyr Arg Phe Trp Gly Thr Trp Thr Asp Ala Ala Thr Ser  
145 150 155 160

Ser Arg Gly Trp Thr Met Leu Cys Ser Gln Ala Gln His Val Leu Leu  
165 170 175

Ser Gly Ser Pro Gly Pro Glu Val Ile Ala Gly Arg Gln Val Ala Thr  
180 185 190

Gly Cys Ser Pro Asp Leu Pro Pro Pro Ser Arg Ala Glu Met Gly Arg  
195 200 205

Asn Pro Trp Asp Ser Pro Cys Pro Ala Arg Ser Leu Pro Gln Ile Ala  
210 215 220

Ala Val Ala Arg Pro Arg Ile Ser Ser Pro Met Ala Leu Ser Pro His  
225 230 235 240

Met Leu Gly Ala Gln Gly Ile Trp Thr His Ser Ile Gln Gly Ser Leu  
245 250 255

Pro Ala Ile Trp Ala Ala Thr Met Gly Thr Lys Gly Gly Ser Arg Val  
260 265 270

Leu Phe Pro Cys His Leu Ser Lys Ala Leu Pro His Pro Asp Ser Gly  
275 280 285

Pro His Pro Ala Gln Asp Pro Gly Leu Trp Ser Gln Ala His Phe Pro  
290 295 300

Leu Ser Leu Gly Leu Gly Leu Thr Ser Gly Gly His Leu Thr Gly Gly  
305 310 315 320

Trp Ser Gln Pro Gly Asn Ile Ala Ala Gly Ala Val Pro Arg Ala Leu  
325 330 335

Pro Ser Gln Gly Asp Met Glu Lys Gly Val Glu Gly Gly Pro Phe Pro  
340 345 350

Ser Arg Cys Gly Asn Ser Ser Glu Leu Phe Trp Ala Lys Cys Gly Pro  
355 360 365

Ser Arg Gln Pro Gln Pro Cys Ser Ala Gly Asp Ala Asp Arg Thr Arg  
370 375 380

Glu Glu Ala Met Leu Ser Leu Gly Thr Cys Cys Ser Met Cys Pro Lys  
385 390 395 400

Pro Ser Cys Phe Pro Asp Gly Pro Ser Gly Asn His Leu Ser Arg Ala  
405 410 415

Ser Ala Pro Leu Gly Ala Arg Trp Val Cys Ile Asn Gly Val Trp Val  
420 425 430

Glu Pro Gly Gly Pro Ser Pro Ala Arg Leu Lys Glu Gly Ser Ser Arg  
435 440 445

Thr His Arg Pro Gly Gly Lys Arg Gly Arg Leu Ala Gly Gly Ser Ala  
450 455 460

Asp Thr Val Arg Ser Pro Ala Asp Ser Leu Ser Met Ser Ser Phe Gln  
465 470 475 480

Ser Val Lys Ser Ile Ser Asn Ser Ala Asn Ser Gln Gly Lys Ala Arg  
485 490 495

Pro Gln Pro Gly Ser Phe Asn Lys Gln Asp Ser Lys Ala Asp Val Ser  
500 505 510

Gln Lys Ala Asp Leu Glu Glu Glu Pro Leu Leu His Asn Ser Lys Leu  
515 520 525

Asp Lys Val Pro Gly Val Gln Gly Gln Ala Arg Lys Glu Lys Ala Glu  
530 535 540

Ala Ser Asn Ala Gly Ala Ala Cys Met Gly Asn Ser Gln His Gln Gly  
545 550 555 560

Arg Gln Met Gly Ala Gly Ala His Pro Pro Met Ile Leu Pro Leu Pro  
565 570 575

Leu Arg Lys Pro Thr Thr Leu Arg Gln Cys Glu Val Leu Ile Arg Glu

580

585

590

Leu Trp Asn Thr Asn Leu Leu Gln Thr Gln Glu Leu Arg His Leu Lys  
 595 600 605

Ser Leu Leu Glu Gly Ser Gln Arg Pro Gln Ala Ala Pro Glu Glu Ala  
 610 615 620

Ser Phe Pro Arg Asp Gln Glu Ala Thr His Phe Pro Lys Val Ser Thr  
 625 630 635 640

Lys Ser Leu Ser Lys Lys Cys Leu Ser Pro Pro Val Ala Glu Arg Ala  
 645 650 655

Ile Leu Pro Ala Leu Lys Gln Thr Pro Lys Asn Asn Phe Ala Glu Arg  
 660 665 670

Gln Lys Arg Leu Gln Ala Met Gln Lys Arg Arg Leu His Arg Ser Val  
 675 680 685

Leu

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 <211> 3461  
 <212> DNA  
 <213> human organism

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gtaaagatcc tagaaacagc caggggaaaag gagctcacccg accagaacat gccagtggta	660
gaaggaatgt caaggacagt gttagtgcta gtgaagtgac ctcaactgtg tacaacactg	720
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aatttctctt gagtttctt gtggcactgg ccgttgggac tttgagtggg gatgcttttt	1260
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caatggaaat gaaaagagga ccacttttca gtcacatctgc ttctcaaac atagaagaaa	1380
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gtgctgcttt tactgaaggc ttatcaagtg gtttaagtac ttctgttgct gtgttctgtc	2040
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<210> 181  
 <211> 755  
 <212> PRT  
 <213> human organism

<400> 181

Met Ala Arg Lys Leu Ser Val Ile Leu Ile Leu Thr Phe Ala Leu Ser  
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Val Thr Asn Pro Leu His Glu Leu Lys Ala Ala Ala Phe Pro Gln Thr  
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Thr Glu Lys Ile Ser Pro Asn Trp Glu Ser Gly Ile Asn Val Asp Leu  
 35 40 45

Ala Ile Ser Thr Arg Gln Tyr His Leu Gln Gln Leu Phe Tyr Arg Tyr  
50 55 60

Gly Glu Asn Asn Ser Leu Ser Val Glu Gly Phe Arg Lys Leu Leu Gln  
65 70 75 80

Asn Ile Gly Ile Asp Lys Ile Lys Arg Ile His Ile His His Asp His  
85 90 95

Asp His His Ser Asp His Glu His His Ser Asp His Glu Arg His Ser  
100 105 110

Asp His Glu His His Ser Asp His Glu His His Ser Asp His Asp His  
115 120 125

His Ser His His Asn His Ala Ala Ser Gly Lys Asn Lys Arg Lys Ala  
130 135 140

Leu Cys Pro Asp His Asp Ser Asp Ser Ser Gly Lys Asp Pro Arg Asn  
145 150 155 160

Ser Gln Gly Lys Gly Ala His Arg Pro Glu His Ala Ser Gly Arg Arg  
165 170 175

Asn Val Lys Asp Ser Val Ser Ala Ser Glu Val Thr Ser Thr Val Tyr  
180 185 190

Asn Thr Val Ser Glu Gly Thr His Phe Leu Glu Thr Ile Glu Thr Pro  
195 200 205

Arg Pro Gly Lys Leu Phe Pro Lys Asp Val Ser Ser Ser Thr Pro Pro  
210 215 220

Ser Val Thr Ser Lys Ser Arg Val Ser Arg Leu Ala Gly Arg Lys Thr  
225 230 235 240

Asn Glu Ser Val Ser Glu Pro Arg Lys Gly Phe Met Tyr Ser Arg Asn  
245 250 255

Thr Asn Glu Asn Pro Gln Glu Cys Phe Asn Ala Ser Lys Leu Leu Thr  
260 265 270



Ser His Gly Met Gly Ile Gln Val Pro Leu Asn Ala Thr Glu Phe Asn  
275 280 285

Tyr Leu Cys Pro Ala Ile Ile Asn Gln Ile Asp Ala Arg Ser Cys Leu  
290 295 300

Ile His Thr Ser Glu Lys Lys Ala Glu Ile Pro Pro Lys Thr Tyr Ser  
305 310 315 320

Leu Gln Ile Ala Trp Val Gly Gly Phe Ile Ala Ile Ser Ile Ile Ser  
325 330 335

Phe Leu Ser Leu Leu Gly Val Ile Leu Val Pro Leu Met Asn Arg Val  
340 345 350

Phe Phe Lys Phe Leu Leu Ser Phe Leu Val Ala Leu Ala Val Gly Thr  
355 360 365

Leu Ser Gly Asp Ala Phe Leu His Leu Leu Pro His Ser His Ala Ser  
370 375 380

His His His Ser His Ser His Glu Glu Pro Ala Met Glu Met Lys Arg  
385 390 395 400

Gly Pro Leu Phe Ser His Leu Ser Ser Gln Asn Ile Glu Glu Ser Ala  
405 410 415

Tyr Phe Asp Ser Thr Trp Lys Gly Leu Thr Ala Leu Gly Gly Leu Tyr  
420 425 430

Phe Met Phe Leu Val Glu His Val Leu Thr Leu Ile Lys Gln Phe Lys  
435 440 445

Asp Lys Lys Lys Lys Asn Gln Lys Lys Pro Glu Asn Asp Asp Asp Val  
450 455 460

Glu Ile Lys Lys Gln Leu Ser Lys Tyr Glu Ser Gln Leu Ser Thr Asn  
465 470 475 480

Glu Glu Lys Val Asp Thr Asp Asp Arg Thr Glu Gly Tyr Leu Arg Ala  
485 490 495

Asp Ser Gln Glu Pro Ser His Phe Asp Ser Gln Gln Pro Ala Val Leu  
500 505 510

Glu Glu Glu Glu Val Met Ile Ala His Ala His Pro Gln Glu Val Tyr  
515 520 525

Asn Glu Tyr Val Pro Arg Gly Cys Lys Asn Lys Cys His Ser His Phe  
530 535 540

His Asp Thr Leu Gly Gln Ser Asp Asp Leu Ile His His His His Asp  
545 550 555 560

Tyr His His Ile Leu His His His His His Gln Asn His His Pro His  
565 570 575

Ser His Ser Gln Arg Tyr Ser Arg Glu Glu Leu Lys Asp Ala Gly Val  
580 585 590

Ala Thr Leu Ala Trp Met Val Ile Met Gly Asp Gly Leu His Asn Phe  
595 600 605

Ser Asp Gly Leu Ala Ile Gly Ala Ala Phe Thr Glu Gly Leu Ser Ser  
610 615 620

Gly Leu Ser Thr Ser Val Ala Val Phe Cys His Glu Leu Pro His Glu  
625 630 635 640

Leu Gly Asp Phe Ala Val Leu Leu Lys Ala Gly Met Thr Val Lys Gln  
645 650 655

Ala Val Leu Tyr Asn Ala Leu Ser Ala Met Leu Ala Tyr Leu Gly Met  
660 665 670

Ala Thr Gly Ile Phe Ile Gly His Tyr Ala Glu Asn Val Ser Met Trp  
675 680 685

Ile Phe Ala Leu Thr Ala Gly Leu Phe Met Tyr Val Ala Leu Val Asp  
690 695 700

Met Val Pro Glu Met Leu His Asn Asp Ala Ser Asp His Gly Cys Ser  
705 710 715 720

Arg Trp Gly Tyr Phe Phe Leu Gln Asn Ala Gly Met Leu Leu Gly Phe

725

730

735

Gly Ile Met Leu Leu Ile Ser Ile Phe Glu His Lys Ile Val Phe Arg  
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Ile Asn Phe  
 755

<210> 182  
 <211> 2032  
 <212> DNA  
 <213> human organism

<400> 182  
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 ctgcctccat tgaaaaacag agattttgtt gatggacctt tacaccacag ggctttactt 660  
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 acagtgttga tgaggcatga aaacattttg ggtttcattg ctgcagatat caaagggaca 1080  
 gggtcctgga ccagttgta cctaatacaca gactatcatg aaaatggttc cctttatgat 1140  
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<210> 183
<211> 502
<212> PRT
<213> human organism

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<400> 183

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Met Leu Leu Arg Ser Ala Gly Lys Leu Asn Val Gly Thr Lys Lys Glu
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Asp Gly Glu Ser Thr Ala Pro Thr Pro Arg Pro Lys Val Leu Arg Cys
          20          25          30

```

```

Lys Cys His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser
          35          40          45

```

```

Thr Asp Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu
          50          55          60

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```

Pro Val Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln
          65          70          75          80

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Cys Arg Asp Thr Pro Ile Pro His Gln Arg Arg Ser Ile Glu Cys Cys

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85

90

95

Thr Glu Arg Asn Glu Cys Asn Lys Asp Leu His Pro Thr Leu Pro Pro  
 100 105 110

Leu Lys Asn Arg Asp Phe Val Asp Gly Pro Ile His His Arg Ala Leu  
 115 120 125

Leu Ile Ser Val Thr Val Cys Ser Leu Leu Leu Val Leu Ile Ile Leu  
 130 135 140

Phe Cys Tyr Phe Arg Tyr Lys Arg Gln Glu Thr Arg Pro Arg Tyr Ser  
 145 150 155 160

Ile Gly Leu Glu Gln Asp Glu Thr Tyr Ile Pro Pro Gly Glu Ser Leu  
 165 170 175

Arg Asp Leu Ile Glu Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu  
 180 185 190

Pro Leu Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Lys  
 195 200 205

Gln Ile Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg  
 210 215 220

Gly Glu Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser  
 225 230 235 240

Trp Phe Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu  
 245 250 255

Asn Ile Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp  
 260 265 270

Thr Gln Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr  
 275 280 285

Asp Tyr Leu Lys Ser Thr Thr Leu Asp Ala Lys Ser Met Leu Lys Leu  
 290 295 300

Ala Tyr Ser Ser Val Ser Gly Leu Cys His Leu His Thr Glu Ile Phe  
 305 310 315 320

Ser Thr Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys  
 325 330 335

Asn Ile Leu Val Lys Lys Asn Gly Thr Cys Cys Ile Ala Asp Leu Gly  
 340 345 350

Leu Ala Val Lys Phe Ile Ser Asp Thr Asn Glu Val Asp Ile Pro Pro  
 355 360 365

Asn Thr Arg Val Gly Thr Lys Arg Tyr Met Pro Pro Glu Val Leu Asp  
 370 375 380

Glu Ser Leu Asn Arg Asn His Phe Gln Ser Tyr Ile Met Ala Asp Met  
 385 390 395 400

Tyr Ser Phe Gly Leu Ile Leu Trp Glu Val Ala Arg Arg Cys Val Ser  
 405 410 415

Gly Gly Ile Val Glu Glu Tyr Gln Leu Pro Tyr His Asp Leu Val Pro  
 420 425 430

Ser Asp Pro Ser Tyr Glu Asp Met Arg Glu Ile Val Cys Ile Lys Lys  
 435 440 445

Leu Arg Pro Ser Phe Pro Asn Arg Trp Ser Ser Asp Glu Cys Leu Arg  
 450 455 460

Gln Met Gly Lys Leu Met Thr Glu Cys Trp Ala His Asn Pro Ala Ser  
 465 470 475 480

Arg Leu Thr Ala Leu Arg Val Lys Lys Thr Leu Ala Lys Met Ser Glu  
 485 490 495

Ser Gln Asp Ile Lys Leu  
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<210> 184

<211> 3375

<212> DNA

<213> human organism

<400> 184

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Ala Val Asp Ile Met Phe Leu Leu Asp Gly Ser Asn Ser Val Gly Lys  
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Gly Ser Phe Glu Arg Ser Lys His Phe Ala Ile Thr Val Cys Asp Gly  
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Leu Asp Ile Ser Pro Glu Arg Val Arg Val Gly Ala Phe Gln Phe Ser  
85 90 95

Ser Thr Pro His Leu Glu Phe Pro Leu Asp Ser Phe Ser Thr Gln Gln  
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Glu Val Lys Ala Arg Ile Lys Arg Met Val Phe Lys Gly Gly Arg Thr  
115 120 125

Glu Thr Glu Leu Ala Leu Lys Tyr Leu Leu His Arg Gly Leu Pro Gly  
130 135 140

Gly Arg Asn Ala Ser Val Pro Gln Ile Leu Ile Ile Val Thr Asp Gly  
145 150 155 160

Lys Ser Gln Gly Asp Val Ala Leu Pro Ser Lys Gln Leu Lys Glu Arg  
165 170 175

Gly Val Thr Val Phe Ala Val Gly Val Arg Phe Pro Arg Trp Glu Glu  
180 185 190

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195 200 205

Glu Gln Val Glu Asp Ala Thr Asn Gly Leu Phe Ser Thr Leu Ser Ser  
210 215 220

Ser Ala Ile Cys Ser Ser Ala Thr Pro Asp Cys Arg Val Glu Ala His  
225 230 235 240

Pro Cys Glu His Arg Thr Leu Glu Met Val Arg Glu Phe Ala Gly Asn  
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260 265 270

His Cys Pro Phe Tyr Ser Trp Lys Arg Val Phe Leu Thr His Pro Ala  
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Thr Cys Tyr Arg Thr Thr Cys Pro Gly Pro Cys Asp Ser Gln Pro Cys  
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Gln Asn Gly Gly Thr Cys Val Pro Glu Gly Leu Asp Gly Tyr Gln Cys  
305 310 315 320

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325 330 335

Ser Leu Glu Cys Arg Val Asp Leu Leu Phe Leu Leu Asp Ser Ser Ala  
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Gly Thr Thr Leu Asp Gly Phe Leu Arg Ala Lys Val Phe Val Lys Arg  
355 360 365

Phe Val Arg Ala Val Leu Ser Glu Asp Ser Arg Ala Arg Val Gly Val  
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Ala Thr Tyr Ser Arg Glu Leu Leu Val Ala Val Pro Val Gly Glu Tyr  
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Gly Gly Pro Thr Leu Thr Gly Ser Ala Leu Arg Gln Ala Ala Glu Arg  
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Gly Phe Gly Ser Ala Thr Arg Thr Gly Gln Asp Arg Pro Arg Arg Val  
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Val Val Leu Leu Thr Glu Ser His Ser Glu Asp Glu Val Ala Gly Pro  
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Ala Arg His Ala Arg Ala Arg Glu Leu Leu Leu Leu Gly Val Gly Ser  
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Glu Ala Val Arg Ala Glu Leu Glu Glu Ile Thr Gly Ser Pro Lys His  
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Val Met Val Tyr Ser Asp Pro Gln Asp Leu Phe Asn Gln Ile Pro Glu  
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Leu Gln Gly Lys Leu Cys Ser Arg Gln Arg Pro Gly Cys Arg Thr Gln  
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Glu Asn Phe Ala Gln Met Gln Ser Phe Val Arg Ser Cys Ala Leu Gln  
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Phe Glu Val Asn Pro Asp Val Thr Gln Val Gly Leu Val Val Tyr Gly  
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Ser Gln Val Gln Thr Ala Phe Gly Leu Asp Thr Lys Pro Thr Arg Ala  
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Ala Met Leu Arg Ala Ile Ser Gln Ala Pro Tyr Leu Gly Gly Val Gly  
595 600 605

Ser Ala Gly Thr Ala Leu Leu His Ile Tyr Asp Lys Val Met Thr Val  
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Gln Arg Gly Ala Arg Pro Gly Val Pro Lys Ala Val Val Val Leu Thr  
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Gly Gly Arg Gly Ala Glu Asp Ala Ala Val Pro Ala Gln Lys Leu Arg  
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Asn Asn Gly Ile Ser Val Leu Val Val Gly Val Gly Pro Val Leu Ser  
660 665 670

Glu Gly Leu Arg Arg Leu Ala Gly Pro Arg Asp Ser Leu Ile His Val  
675 680 685

Ala Ala Tyr Ala Asp Leu Arg Tyr His Gln Asp Val Leu Ile Glu Trp  
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Leu Cys Gly Glu Ala Lys Gln Pro Val Asn Leu Cys Lys Pro Ser Pro  
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Cys Met Asn Glu Gly Ser Cys Val Leu Gln Asn Gly Ser Tyr Arg Cys  
725 730 735

Lys Cys Arg Asp Gly Trp Glu Gly Pro His Cys Glu Asn Arg Glu Trp  
740 745 750

Ser Ser Cys Ser Val Cys Val Ser Gln Gly Trp Ile Leu Glu Thr Pro  
755 760 765

Leu Arg His Met Ala Pro Val Gln Glu Gly Ser Ser Arg Thr Pro Pro  
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Asn Val Cys Ala Pro Gly Pro  
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Leu Val Pro Ala Ser Pro Pro Ala Ser Leu Leu Pro Pro Ala Ser Glu  
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Ser Pro Glu Pro Leu Ser Gln Gln Trp Thr Ala Gly Met Gly Leu Leu  
50 55 60

Met Ala Leu Ile Val Leu Leu Ile Val Ala Gly Asn Val Leu Val Ile  
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Val Ala Ile Ala Lys Thr Pro Arg Leu Gln Thr Leu Thr Asn Leu Phe  
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Ile Met Ser Leu Ala Ser Ala Asp Leu Val Met Gly Leu Leu Val Val  
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Pro Phe Gly Ala Thr Ile Val Val Trp Gly Arg Trp Glu Tyr Gly Ser  
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Phe Phe Cys Glu Leu Trp Thr Ser Val Asp Val Leu Cys Val Thr Ala  
130 135 140

Ser Ile Glu Thr Leu Cys Val Ile Ala Leu Asp Arg Tyr Leu Ala Ile  
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Thr Ser Pro Phe Arg Tyr Gln Ser Leu Leu Thr Arg Ala Arg Ala Arg  
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Gly Leu Val Cys Thr Val Trp Ala Ile Ser Ala Leu Val Ser Phe Leu  
180 185 190

Pro Ile Leu Met His Trp Trp Arg Ala Glu Ser Asp Glu Ala Arg Arg  
195 200 205

Cys Tyr Asn Asp Pro Lys Cys Cys Asp Phe Val Thr Asn Arg Ala Tyr  
210 215 220

Ala Ile Ala Ser Ser Val Val Ser Phe Tyr Val Pro Leu Cys Ile Met  
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Ala Phe Val Tyr Leu Arg Val Phe Arg Glu Ala Gln Lys Gln Val Lys  
245 250 255

Lys Ile Asp Ser Cys Glu Arg Arg Phe Leu Gly Gly Pro Ala Arg Pro  
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Pro Ser Pro Ser Pro Ser Pro Val Pro Ala Pro Ala Pro Pro Pro Gly  
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Pro Pro Arg Pro Ala Ala Ala Ala Ala Thr Ala Pro Leu Ala Asn Gly  
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Arg Ala Gly Lys Arg Arg Pro Ser Arg Leu Val Ala Leu Arg Glu Gln  
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Lys Ala Leu Lys Thr Leu Gly Ile Ile Met Gly Val Phe Thr Leu Cys  
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Trp Leu Pro Phe Phe Leu Ala Asn Val Val Lys Ala Phe His Arg Glu  
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Leu Val Pro Asp Arg Leu Phe Val Phe Phe Asn Trp Leu Gly Tyr Ala  
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Asn Ser Ala Phe Asn Pro Ile Ile Tyr Cys Arg Ser Pro Asp Phe Arg  
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Lys Ala Phe Gln Gly Leu Leu Cys Cys Ala Arg Arg Ala Ala Arg Arg  
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Arg His Ala Thr His Gly Asp Arg Pro Arg Ala Ser Gly Cys Leu Ala  
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Arg Pro Gly Pro Pro Pro Ser Pro Gly Ala Ala Ser Asp Asp Asp Asp  
420 425 430

Asp Asp Val Val Gly Ala Thr Pro Pro Ala Arg Leu Leu Glu Pro Trp  
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<400> 189

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Pro Pro Gly Arg Gly Arg Ala Ala Gly Pro Gln Glu Asp Val Asp Glu  
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Cys Ala Gln Gly Leu Asp Asp Cys His Ala Asp Ala Leu Cys Gln Asn  
 50 55 60

Thr Pro Thr Ser Tyr Lys Cys Ser Cys Lys Pro Gly Tyr Gln Gly Glu  
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Gly Arg Gln Cys Glu Asp Ile Asp Glu Cys Gly Asn Glu Leu Asn Gly  
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Gly Cys Val His Asp Cys Leu Asn Ile Pro Gly Asn Tyr Arg Cys Thr  
 100 105 110

Cys Phe Asp Gly Phe Met Leu Ala His Asp Gly His Asn Cys Leu Asp  
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Val Asp Glu Cys Leu Glu Asn Asn Gly Gly Cys Gln His Thr Cys Val  
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Asn Val Met Gly Ser Tyr Glu Cys Cys Cys Lys Glu Gly Phe Phe Leu  
145 150 155 160

Ser Asp Asn Gln His Thr Cys Ile His Arg Ser Glu Glu Gly Leu Ser  
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Cys Lys Asp Ile Asp Glu Cys Gln Thr Arg Asn Gly Gly Cys Asp His  
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Ser Leu Asp Arg Thr Cys Asp His Ser Cys Ile Asn His Pro Gly Thr  
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Cys Gly Asp Thr Asn Glu Cys Ser Ile Asn Asn Gly Gly Cys Gln Gln  
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Val Cys Val Asn Thr Val Gly Ser Tyr Glu Cys Gln Cys His Pro Gly  
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Tyr Lys Leu His Trp Asn Lys Lys Asp Cys Val Glu Val Lys Gly Leu  
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Leu Pro Thr Ser Val Ser Pro Arg Val Ser Leu His Cys Gly Lys Ser  
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Glu Gly Lys Cys Ser Leu Lys Asn Ala Glu Leu Phe Pro Glu Gly Leu  
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Arg Pro Ala Leu Pro Glu Lys His Ser Ser Val Lys Glu Ser Phe Arg  
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Leu Glu Thr Asn Gln Lys Glu Val Thr Ala Ser Cys Asp Leu Ser Cys

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Cys Arg Ala Gly Thr Tyr Tyr Asp Gly Ala Arg Glu Arg Cys Ile Leu  
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Cys Pro Asn Gly Thr Phe Gln Asn Glu Glu Gly Gln Met Thr Cys Glu  
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Pro Cys Pro Arg Pro Gly Asn Ser Gly Ala Leu Lys Thr Pro Glu Ala  
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Trp Asn Met Ser Glu Cys Gly Gly Leu Cys Gln Pro Gly Glu Tyr Ser  
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Ala Asp Gly Phe Ala Pro Cys Gln Leu Cys Ala Leu Gly Thr Phe Gln  
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Pro Glu Ala Gly Arg Thr Ser Cys Phe Pro Cys Gly Gly Gly Leu Ala  
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Gln Cys Ser Pro Gly His Phe Tyr Asn Thr Thr Thr His Arg Cys Ile  
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Arg Cys Pro Val Gly Thr Tyr Gln Pro Glu Phe Gly Lys Asn Asn Cys  
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Val Ser Cys Pro Gly Asn Thr Thr Thr Asp Phe Asp Gly Ser Thr Asn  
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Ile Thr Gln Cys Lys Asn Arg Arg Cys Gly Gly Glu Leu Gly Asp Phe  
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Thr Gly Tyr Ile Glu Ser Pro Asn Tyr Pro Gly Asn Tyr Pro Ala Asn  
820 825 830

Thr Glu Cys Thr Trp Thr Ile Asn Pro Pro Pro Lys Arg Arg Ile Leu  
835 840 845

Ile Val Val Pro Glu Ile Phe Leu Pro Ile Glu Asp Asp Cys Gly Asp  
850 855 860

Tyr Leu Val Met Arg Lys Thr Ser Ser Ser Asn Ser Val Thr Thr Tyr  
865 870 875 880

Glu Thr Cys Gln Thr Tyr Glu Arg Pro Ile Ala Phe Thr Ser Arg Ser  
885 890 895

Lys Lys Leu Trp Ile Gln Phe Lys Ser Asn Glu Gly Asn Ser Ala Arg  
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Gly Phe Gln Val Pro Tyr Val Thr Tyr Asp Glu Asp Tyr Gln Glu Leu  
915 920 925

Ile Glu Asp Ile Val Arg Asp Gly Arg Leu Tyr Ala Ser Glu Asn His  
930 935 940

Gln Glu Ile Leu Lys Asp Lys Lys Leu Ile Lys Ala Leu Phe Asp Val  
945 950 955 960

Leu Ala His Pro Gln Asn Tyr Phe Lys Tyr Thr Ala Gln Glu Ser Arg  
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Ser Tyr Leu Lys Pro Arg Thr Lys Glu Ser Met Tyr His Ser Leu Thr
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Tyr Ala Thr Ile Leu Glu Met Gln Ala Met Met Thr Phe Asp Pro Gln
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Asp Ile Leu Leu Ala Gly Asn Met Met Lys Glu Ala Gln Met Leu Cys

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Leu Gln Asp Glu Asn Met Val Ser Phe Ile Lys Gly Gly Ile Lys Val  
115 120 125

Arg Asn Ser Tyr Gln Thr Tyr Lys Glu Leu Asp Ser Leu Val Gln Ser  
130 135 140

Ser Gln Tyr Cys Lys Gly Glu Asn His Pro His Phe Glu Gly Gly Val  
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Lys Leu Gly Val Gly Ala Phe Asn Leu Thr Leu Ser Met Leu Pro Thr  
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Arg Ile Leu Arg Leu Leu Glu Phe Val Gly Phe Ser Gly Asn Lys Asp  
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Tyr Gly Leu Leu Gln Leu Glu Glu Gly Ala Ser Gly His Ser Phe Arg  
195 200 205

Ser Val Leu Cys Val Met Leu Leu Leu Cys Tyr His Thr Phe Leu Thr  
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Leu Lys Pro Tyr Leu Asn Arg Tyr Pro Lys Gly Ala Ile Phe Leu Phe  
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Phe Ala Gly Arg Ile Glu Val Ile Lys Gly Asn Ile Asp Ala Ala Ile  
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Arg Arg Phe Glu Glu Cys Cys Glu Ala Gln Gln His Trp Lys Gln Phe  
275 280 285

His His Met Cys Tyr Trp Glu Leu Met Trp Cys Phe Thr Tyr Lys Gly  
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Gln Trp Lys Met Ser Tyr Phe Tyr Ala Asp Leu Leu Ser Lys Glu Asn  
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Cys Trp Ser Lys Ala Thr Tyr Ile Tyr Met Lys Ala Ala Tyr Leu Ser  
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Met Phe Gly Lys Glu Asp His Lys Pro Phe Gly Asp Asp Glu Val Glu  
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Leu Pro Thr Glu Lys Phe Ala Ile Arg Lys Ser Arg Arg Tyr Phe Ser  
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Ser Asn Pro Ile Ser Leu Pro Val Pro Ala Leu Glu Met Met Tyr Ile  
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Trp Asn Gly Tyr Ala Val Ile Gly Lys Gln Pro Lys Leu Thr Asp Gly  
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Ile Leu Glu Ile Ile Thr Lys Ala Glu Glu Met Leu Glu Lys Gly Pro  
420 425 430

Glu Asn Glu Tyr Ser Val Asp Asp Glu Cys Leu Val Lys Leu Leu Lys  
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Gly Leu Cys Leu Lys Tyr Leu Gly Arg Val Gln Glu Ala Glu Glu Asn  
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Phe Arg Ser Ile Ser Ala Asn Glu Lys Lys Ile Lys Tyr Asp His Tyr  
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Leu Ile Pro Asn Ala Leu Leu Glu Leu Ala Leu Leu Leu Met Glu Gln  
485 490 495

Asp Arg Asn Glu Glu Ala Ile Lys Leu Leu Glu Ser Ala Lys Gln Asn  
500 505 510

Tyr Lys Asn Tyr Ser Met Glu Ser Arg Thr His Phe Arg Ile Gln Ala  
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Asn Pro Glu Ala Pro Gly Arg Ala Ala Val Pro Pro Trp Gly Lys Tyr  
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Asp Ala Ala Leu Arg Thr Met Ile Pro Phe Arg Pro Lys Pro Arg Phe  
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Pro Ala Pro Gln Pro Leu Asp Asn Ala Gly Leu Phe Ser Tyr Leu Thr  
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Val Ser Trp Leu Thr Pro Leu Met Ile Gln Ser Leu Arg Ser Arg Leu  
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Asp Glu Asn Thr Ile Pro Pro Leu Ser Val His Asp Ala Ser Asp Lys  
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Gly Ile Glu Lys Ala Ser Val Leu Leu Val Met Leu Arg Phe Gln Arg  
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Thr Arg Leu Ile Phe Asp Ala Leu Leu Gly Ile Cys Phe Cys Ile Ala  
165 170 175

Ser Val Leu Gly Pro Ile Leu Ile Ile Pro Lys Ile Leu Glu Tyr Ser  
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Glu Glu Gln Leu Gly Asn Val Val His Gly Val Gly Leu Cys Phe Ala  
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Leu Phe Leu Ser Glu Cys Val Lys Ser Leu Ser Phe Ser Ser Ser Trp

210

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Glu Gly Val Cys Tyr Gly Pro Leu Val Leu Ile Thr Cys Ala Ser Leu  
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Val Ile Cys Ser Ile Ser Ser Tyr Phe Ile Ile Gly Tyr Thr Ala Phe  
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Ile Ala Ile Leu Cys Tyr Leu Leu Val Phe Pro Leu Ala Val Phe Met  
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Glu Ser Leu Thr Phe Cys Ser Lys Pro Gly Asp Gly Met Ala Phe Ser  
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Gln Asp Pro Ser Lys Ala Leu Val Phe Glu Glu Ala Thr Leu Ser Trp  
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Gln Gln Thr Cys Pro Gly Ile Val Asn Gly Ala Leu Glu Leu Glu Arg  
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Asn Gly His Ala Ser Glu Gly Met Thr Arg Pro Arg Asp Ala Leu Gly  
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Pro Glu Glu Glu Gly Asn Ser Leu Gly Pro Glu Leu His Lys Ile Asn  
485 490 495

Leu Val Val Ser Lys Gly Met Met Leu Gly Val Cys Gly Asn Thr Gly  
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Ser Gly Lys Ser Ser Leu Leu Ser Ala Ile Leu Glu Glu Met His Leu  
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Leu Glu Gly Ser Val Gly Val Gln Gly Ser Leu Ala Tyr Val Pro Gln  
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Gln Ala Trp Ile Val Ser Gly Asn Ile Arg Glu Asn Ile Leu Met Gly  
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Gly Ala Tyr Asp Lys Ala Arg Tyr Leu Gln Val Leu His Cys Cys Ser  
565 570 575

Leu Asn Arg Asp Leu Glu Leu Leu Pro Phe Gly Asp Met Thr Glu Ile  
580 585 590

Gly Glu Arg Gly Leu Asn Leu Ser Gly Gly Gln Lys Gln Arg Ile Ser  
595 600 605

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<400> 198

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Glu Ala Glu Val Thr Leu Glu Ala Gly Gly Ala Glu Gln Glu Pro Gly  
35 40 45

Gln Ala Leu Gly Lys Val Phe Met Gly Cys Pro Gly Gln Glu Pro Ala  
50 55 60

Leu Phe Ser Thr Asp Asn Asp Asp Phe Thr Val Arg Asn Gly Glu Thr  
65 70 75 80

Val Gln Glu Arg Arg Ser Leu Lys Glu Arg Asn Pro Leu Lys Ile Phe  
85 90 95

Pro Ser Lys Arg Ile Leu Arg Arg His Lys Arg Asp Trp Val Val Ala  
100 105 110

Pro Ile Ser Val Pro Glu Asn Gly Lys Gly Pro Phe Pro Gln Arg Leu  
115 120 125

Asn Gln Leu Lys Ser Asn Lys Asp Arg Asp Thr Lys Ile Phe Tyr Ser  
130 135 140

Ile Thr Gly Pro Gly Ala Asp Ser Pro Pro Glu Gly Val Phe Ala Val  
145 150 155 160

Glu Lys Glu Thr Gly Trp Leu Leu Leu Asn Lys Pro Leu Asp Arg Glu  
165 170 175

Glu Ile Ala Lys Tyr Glu Leu Phe Gly His Ala Val Ser Glu Asn Gly  
180 185 190

Ala Ser Val Glu Asp Pro Met Asn Ile Ser Ile Ile Val Thr Asp Gln  
195 200 205

Asn Asp His Lys Pro Lys Phe Thr Gln Asp Thr Phe Arg Gly Ser Val  
210 215 220

Leu Glu Gly Val Leu Pro Gly Thr Ser Val Met Gln Val Thr Ala Thr  
225 230 235 240

Asp Glu Asp Asp Ala Ile Tyr Thr Tyr Asn Gly Val Val Ala Tyr Ser  
245 250 255

Ile His Ser Gln Glu Pro Lys Asp Pro His Asp Leu Met Phe Thr Ile  
260 265 270

His Arg Ser Thr Gly Thr Ile Ser Val Ile Ser Ser Gly Leu Asp Arg  
275 280 285

Glu Lys Val Pro Glu Tyr Thr Leu Thr Ile Gln Ala Thr Asp Met Asp  
290 295 300

Gly Asp Gly Ser Thr Thr Thr Ala Val Ala Val Val Glu Ile Leu Asp  
305 310 315 320

Ala Asn Asp Asn Ala Pro Met Phe Asp Pro Gln Lys Tyr Glu Ala His  
325 330 335

Val Pro Glu Asn Ala Val Gly His Glu Val Gln Arg Leu Thr Val Thr  
340 345 350

Asp Leu Asp Ala Pro Asn Ser Pro Ala Trp Arg Ala Thr Tyr Leu Ile  
355 360 365

Met Gly Gly Asp Asp Gly Asp His Phe Thr Ile Thr Thr His Pro Glu  
370 375 380

Ser Asn Gln Gly Ile Leu Thr Thr Arg Lys Gly Leu Asp Phe Glu Ala  
385 390 395 400

Lys Asn Gln His Thr Leu Tyr Val Glu Val Thr Asn Glu Ala Pro Phe  
405 410 415

Val Leu Lys Leu Pro Thr Ser Thr Ala Thr Ile Val Val His Val Glu  
420 425 430

Asp Val Asn Glu Ala Pro Val Phe Val Pro Pro Ser Lys Val Val Glu  
435 440 445

Val Gln Glu Gly Ile Pro Thr Gly Glu Pro Val Cys Val Tyr Thr Ala  
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Glu Asp Pro Asp Lys Glu Asn Gln Lys Ile Ser Tyr Arg Ile Leu Arg  
465 470 475 480

Asp Pro Ala Gly Trp Leu Ala Met Asp Pro Asp Ser Gly Gln Val Thr  
485 490 495

Ala Val Gly Thr Leu Asp Arg Glu Asp Glu Gln Phe Val Arg Asn Asn  
500 505 510

Ile Tyr Glu Val Met Val Leu Ala Met Asp Asn Gly Ser Pro Pro Thr  
515 520 525

Thr Gly Thr Gly Thr Leu Leu Leu Thr Leu Ile Asp Val Asn Asp His  
530 535 540

Gly Pro Val Pro Glu Pro Arg Gln Ile Thr Ile Cys Asn Gln Ser Pro  
545 550 555 560

Val Arg His Val Leu Asn Ile Thr Asp Lys Asp Leu Ser Pro His Thr  
565 570 575

Ser Pro Phe Gln Ala Gln Leu Thr Asp Asp Ser Asp Ile Tyr Trp Thr  
580 585 590

Ala Glu Val Asn Glu Glu Gly Asp Thr Val Val Leu Ser Leu Lys Lys  
595 600 605

Phe Leu Lys Gln Asp Thr Tyr Asp Val His Leu Ser Leu Ser Asp His  
610 615 620

Gly Asn Lys Glu Gln Leu Thr Val Ile Arg Ala Thr Val Cys Asp Cys  
625 630 635 640

His Gly His Val Glu Thr Cys Pro Gly Pro Trp Lys Gly Gly Phe Ile

645

650

655

Leu Pro Val Leu Gly Ala Val Leu Ala Leu Leu Phe Leu Leu Leu Val  
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Leu Leu Leu Leu Val Arg Lys Lys Arg Lys Ile Lys Glu Pro Leu Leu  
 675 680 685

Leu Pro Glu Asp Asp Thr Arg Asp Asn Val Phe Tyr Tyr Gly Glu Glu  
 690 695 700

Gly Gly Gly Glu Glu Asp Gln Asp Tyr Asp Ile Thr Gln Leu His Arg  
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Gly Leu Glu Ala Arg Pro Glu Val Val Leu Arg Asn Asp Val Ala Pro  
 725 730 735

Thr Ile Ile Pro Thr Pro Met Tyr Arg Pro Arg Pro Ala Asn Pro Asp  
 740 745 750

Glu Ile Gly Asn Phe Ile Ile Glu Asn Leu Lys Ala Ala Asn Thr Asp  
 755 760 765

Pro Thr Ala Pro Pro Tyr Asp Thr Leu Leu Val Phe Asp Tyr Glu Gly  
 770 775 780

Ser Gly Ser Asp Ala Ala Ser Leu Ser Ser Leu Thr Ser Ser Ala Ser  
 785 790 795 800

Asp Gln Asp Gln Asp Tyr Asp Tyr Leu Asn Glu Trp Gly Ser Arg Phe  
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Lys Lys Leu Ala Asp Met Tyr Gly Gly Gly Glu Asp Asp  
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<211> 1148

<212> DNA

<213> human organism

<400> 199

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<211> 353  
<212> PRT  
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<400> 200

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Ser Asn Thr Asp Thr Val Asp Asp Trp Thr Gly Thr Lys Leu Val Ile  
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Val Leu Cys Val Gly Thr Phe Phe Cys Leu Phe Ile Phe Phe Ser Asn  
35 40 45

Ser Leu Val Ile Ala Ala Val Ile Lys Asn Arg Lys Phe His Phe Pro

50

55

60

Phe Tyr Tyr Leu Leu Ala Asn Leu Ala Ala Ala Asp Phe Phe Ala Gly  
65 70 75 80

Ile Ala Tyr Val Phe Leu Met Phe Asn Thr Gly Pro Val Ser Lys Thr  
85 90 95

Leu Thr Val Asn Arg Trp Phe Leu Arg Gln Gly Leu Leu Asp Ser Ser  
100 105 110

Leu Thr Ala Ser Leu Thr Asn Leu Leu Val Ile Ala Val Glu Arg His  
115 120 125

Met Ser Ile Met Arg Met Arg Val His Ser Asn Leu Thr Lys Lys Arg  
130 135 140

Val Thr Leu Leu Ile Leu Leu Val Trp Ala Ile Ala Ile Phe Met Gly  
145 150 155 160

Ala Val Pro Thr Leu Gly Trp Asn Cys Leu Cys Asn Ile Ser Ala Cys  
165 170 175

Ser Ser Leu Ala Pro Ile Tyr Ser Arg Ser Tyr Leu Val Phe Trp Thr  
180 185 190

Val Ser Asn Leu Met Ala Phe Leu Ile Met Val Val Val Tyr Leu Arg  
195 200 205

Ile Tyr Val Tyr Val Lys Arg Lys Thr Asn Val Leu Ser Pro His Thr  
210 215 220

Ser Gly Ser Ile Ser Arg Arg Arg Thr Pro Met Lys Leu Met Lys Thr  
225 230 235 240

Val Met Thr Val Leu Gly Ala Phe Val Val Cys Trp Thr Pro Gly Leu  
245 250 255

Val Val Leu Leu Leu Asp Gly Leu Asn Cys Arg Gln Cys Gly Val Gln  
260 265 270

His Val Lys Arg Trp Phe Leu Leu Leu Ala Leu Leu Asn Ser Val Val  
275 280 285

Asn Pro Ile Ile Tyr Ser Tyr Lys Asp Glu Asp Met Tyr Gly Thr Met  
 290 295 300

Lys Lys Met Ile Cys Cys Phe Ser Gln Glu Asn Pro Glu Arg Arg Pro  
 305 310 315 320

Ser Arg Ile Pro Ser Thr Val Leu Ser Arg Ser Asp Thr Gly Ser Gln  
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Tyr Ile Glu Asp Ser Ile Ser Gln Gly Ala Val Cys Asn Lys Ser Thr  
 340 345 350

Ser

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 <211> 892  
 <212> DNA  
 <213> human organism

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Leu Leu Ser Leu Leu Ser Phe Leu Asp Glu Thr Ser Gly Leu Ser Thr  
35 40 45

His Leu Pro Cys Leu Ser Leu Ser Lys Glu Cys Gly Val Leu His Leu  
50 55 60

Asp Ile His Gly Lys Lys Glu Asp Met Arg Ile Thr Gln Gln Ser Ser  
65 70 75 80

Gln Leu Tyr Leu Trp Asp Met Gly Gly Phe Thr Ile Phe Lys Asn Leu  
85 90 95

Trp Met Ser Leu Ile Pro Arg Gly Asn Lys Arg Ser Pro Lys Arg Val  
100 105 110

Thr Glu Thr Ile Leu Arg Asp Phe Lys Gln Lys Gln Ser Ser Lys Ile  
115 120 125

Gln Glu Glu Arg Arg Arg Glu Ser Ala Gly Pro Asn Leu Ser Ser Phe  
130 135 140

Trp Phe Val Gly Asn Ala Gly Arg Gly Asp Arg Pro Gln Ile Trp Ala  
145 150 155 160

Gly Ser Lys Gln Phe Ser Gly  
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<210> 203  
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<212> DNA  
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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<210> 204

<211> 553

<212> PRT

<213> human organism

<400> 204

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20

25

30

Ala Ala Gly Ile Thr Tyr Val Pro Pro Leu Leu Leu Glu Val Gly Val  
 35 40 45

Glu Glu Lys Phe Met Thr Met Val Leu Gly Ile Gly Pro Val Leu Gly  
 50 55 60

Leu Val Cys Val Pro Leu Leu Gly Ser Ala Ser Asp His Trp Arg Gly  
 65 70 75 80

Arg Tyr Gly Arg Arg Arg Pro Phe Ile Trp Ala Leu Ser Leu Gly Ile  
 85 90 95

Leu Leu Ser Leu Phe Leu Ile Pro Arg Ala Gly Trp Leu Ala Gly Leu  
 100 105 110

Leu Cys Pro Asp Pro Arg Pro Leu Glu Leu Ala Leu Leu Ile Leu Gly  
 115 120 125

Val Gly Leu Leu Asp Phe Cys Gly Gln Val Cys Phe Thr Pro Leu Glu  
 130 135 140

Ala Leu Leu Ser Asp Leu Phe Arg Asp Pro Asp His Cys Arg Gln Ala  
 145 150 155 160

Tyr Ser Val Tyr Ala Phe Met Ile Ser Leu Gly Gly Cys Leu Gly Tyr  
 165 170 175

Leu Leu Pro Ala Ile Asp Trp Asp Thr Ser Ala Leu Ala Pro Tyr Leu  
 180 185 190

Gly Thr Gln Glu Glu Cys Leu Phe Gly Leu Leu Thr Leu Ile Phe Leu  
 195 200 205

Thr Cys Val Ala Ala Thr Leu Leu Val Ala Glu Glu Ala Ala Leu Gly  
 210 215 220

Pro Thr Glu Pro Ala Glu Gly Leu Ser Ala Pro Ser Leu Ser Pro His  
 225 230 235 240

Cys Cys Pro Cys Arg Ala Arg Leu Ala Phe Arg Asn Leu Gly Ala Leu  
 245 250 255

Leu Pro Arg Leu His Gln Leu Cys Cys Arg Met Pro Arg Thr Leu Arg  
260 265 270

Arg Leu Phe Val Ala Glu Leu Cys Ser Trp Met Ala Leu Met Thr Phe  
275 280 285

Thr Leu Phe Tyr Thr Asp Phe Val Gly Glu Gly Leu Tyr Gln Gly Val  
290 295 300

Pro Arg Ala Glu Pro Gly Thr Glu Ala Arg Arg His Tyr Asp Glu Gly  
305 310 315 320

Val Arg Met Gly Ser Leu Gly Leu Phe Leu Gln Cys Ala Ile Ser Leu  
325 330 335

Val Phe Ser Leu Val Met Asp Arg Leu Val Gln Arg Phe Gly Thr Arg  
340 345 350

Ala Val Tyr Leu Ala Ser Val Ala Ala Phe Pro Val Ala Ala Gly Ala  
355 360 365

Thr Cys Leu Ser His Ser Val Ala Val Val Thr Ala Ser Ala Ala Leu  
370 375 380

Thr Gly Phe Thr Phe Ser Ala Leu Gln Ile Leu Pro Tyr Thr Leu Ala  
385 390 395 400

Ser Leu Tyr His Arg Glu Lys Gln Val Phe Leu Pro Lys Tyr Arg Gly  
405 410 415

Asp Thr Gly Gly Ala Ser Ser Glu Asp Ser Leu Met Thr Ser Phe Leu  
420 425 430

Pro Gly Pro Lys Pro Gly Ala Pro Phe Pro Asn Gly His Val Gly Ala  
435 440 445

Gly Gly Ser Gly Leu Leu Pro Pro Pro Pro Ala Leu Cys Gly Ala Ser  
450 455 460

Ala Cys Asp Val Ser Val Arg Val Val Val Gly Glu Pro Thr Glu Ala  
465 470 475 480



Arg Val Val Pro Gly Arg Gly Ile Cys Leu Asp Leu Ala Ile Leu Asp  
485 490 495

Ser Ala Phe Leu Leu Ser Gln Val Ala Pro Ser Leu Phe Met Gly Ser  
500 505 510

Ile Val Gln Leu Ser Gln Ser Val Thr Ala Tyr Met Val Ser Ala Ala  
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Gly Leu Gly Leu Val Ala Ile Tyr Phe Ala Thr Gln Val Val Phe Asp  
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Lys Ser Asp Leu Ala Lys Tyr Ser Ala  
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<212> DNA  
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<400> 205  
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atagtgttac ggacgcctgt gcgaggactc ttccacctct ggcattgagaa gcgctgcatg      1440
gacgagctga ccccgagca gtacaagatg tgcattgcagt ccaaggccat gaacgaggca      1500
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cagaaacaga agacaagtag caaaaaaaca tga                                     1593

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<210> 206
<211> 530
<212> PRT
<213> human organism

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<400> 206

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Met Val Arg Arg Gly Leu Leu Ala Trp Ile Ser Arg Val Val Val Leu
1           5           10           15

```

```

Leu Val Leu Leu Cys Cys Ala Ile Ser Val Leu Tyr Met Leu Ala Cys
20           25           30

```

```

Thr Pro Lys Gly Asp Glu Glu Gln Leu Ala Leu Pro Arg Ala Asn Ser
35           40           45

```

```

Pro Thr Gly Lys Glu Gly Tyr Gln Ala Val Leu Gln Glu Trp Glu Glu
50           55           60

```

```

Gln His Arg Asn Tyr Val Ser Ser Leu Lys Arg Gln Ile Ala Gln Leu
65           70           75           80

```

```

Lys Glu Glu Leu Gln Glu Arg Ser Glu Gln Leu Arg Asn Gly Gln Tyr
85           90           95

```

```

Gln Ala Ser Asp Ala Ala Gly Leu Gly Leu Asp Arg Ser Pro Pro Glu

```

100					105					110					
Lys	Thr	Gln	Ala	Asp	Leu	Leu	Ala	Phe	Leu	His	Ser	Gln	Val	Asp	Lys
		115					120					125			
Ala	Glu	Val	Asn	Ala	Gly	Val	Lys	Leu	Ala	Thr	Glu	Tyr	Ala	Ala	Val
		130					135					140			
Pro	Phe	Asp	Ser	Phe	Thr	Leu	Gln	Lys	Val	Tyr	Gln	Leu	Glu	Thr	Gly
		145					150					155			160
Leu	Thr	Arg	His	Pro	Glu	Glu	Lys	Pro	Val	Arg	Lys	Asp	Lys	Arg	Asp
				165					170					175	
Glu	Leu	Val	Glu	Ala	Ile	Glu	Ser	Ala	Leu	Glu	Thr	Leu	Asn	Asn	Pro
			180					185					190		
Ala	Glu	Asn	Ser	Pro	Asn	His	Arg	Pro	Tyr	Thr	Ala	Ser	Asp	Phe	Ile
		195					200					205			
Glu	Gly	Ile	Tyr	Arg	Thr	Glu	Arg	Asp	Lys	Gly	Thr	Leu	Tyr	Glu	Leu
		210					215					220			
Thr	Phe	Lys	Gly	Asp	His	Lys	His	Glu	Phe	Lys	Arg	Leu	Ile	Leu	Phe
		225					230					235			240
Arg	Pro	Phe	Gly	Pro	Ile	Met	Lys	Val	Lys	Asn	Glu	Lys	Leu	Asn	Met
				245					250					255	
Ala	Asn	Thr	Leu	Ile	Asn	Val	Ile	Val	Pro	Leu	Ala	Lys	Arg	Val	Asp
			260					265					270		
Lys	Phe	Arg	Gln	Phe	Met	Gln	Asn	Phe	Arg	Glu	Met	Cys	Ile	Glu	Gln
		275					280					285			
Asp	Gly	Arg	Val	His	Leu	Thr	Val	Val	Tyr	Phe	Gly	Lys	Glu	Glu	Ile
		290					295					300			
Asn	Glu	Val	Lys	Gly	Ile	Leu	Glu	Asn	Thr	Ser	Lys	Ala	Ala	Asn	Phe
		305					310					315		320	
Arg	Asn	Phe	Thr	Phe	Ile	Gln	Leu	Asn	Gly	Glu	Phe	Ser	Arg	Gly	Lys
				325					330					335	

Gly Leu Asp Val Gly Ala Arg Phe Trp Lys Gly Ser Asn Val Leu Leu  
340 345 350

Phe Phe Cys Asp Val Asp Ile Tyr Phe Thr Ser Glu Phe Leu Asn Thr  
355 360 365

Cys Arg Leu Asn Thr Gln Pro Gly Lys Lys Val Phe Tyr Pro Val Leu  
370 375 380

Phe Ser Gln Tyr Asn Pro Gly Ile Ile Tyr Gly His His Asp Ala Val  
385 390 395 400

Pro Pro Leu Glu Gln Gln Leu Val Ile Lys Lys Glu Thr Gly Phe Trp  
405 410 415

Arg Asp Phe Gly Phe Gly Met Thr Cys Gln Tyr Arg Ser Asp Phe Ile  
420 425 430

Asn Ile Gly Gly Phe Asp Leu Asp Ile Lys Gly Trp Gly Gly Glu Asp  
435 440 445

Val His Leu Tyr Arg Lys Tyr Leu His Ser Asn Leu Ile Val Val Arg  
450 455 460

Thr Pro Val Arg Gly Leu Phe His Leu Trp His Glu Lys Arg Cys Met  
465 470 475 480

Asp Glu Leu Thr Pro Glu Gln Tyr Lys Met Cys Met Gln Ser Lys Ala  
485 490 495

Met Asn Glu Ala Ser His Gly Gln Leu Gly Met Leu Val Phe Arg His  
500 505 510

Glu Ile Glu Ala His Leu Arg Lys Gln Lys Gln Lys Thr Ser Ser Lys  
515 520 525

Lys Thr  
530

<210> 207  
<211> 2712  
<212> DNA

<213> human organism

<400> 207

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ccagaatgcc attgtgtgcg tgaaggaaaa ttggagcata cacttgcccg agacttgggt	420
ccagggtgata cagtttgcct ttctgttggg gatagagttc ctgctgactt acgcttgttt	480
gaggctgtgg atctttccat tgatgagtcc agcttgacag gtgagacaac gccttgttct	540
aagggtgacag ctccctcagcc agctgcaact aatggagatc ttgcatcgag aagtaacatt	600
gcctttatgg gaacactggc cagatgtggc aaagcaaagg gtgttgtcat tggaacagga	660
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<210> 208
<211> 903
<212> PRT
<213> human organism

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<400> 208

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Met Ile Pro Val Leu Thr Ser Lys Lys Ala Ser Glu Leu Pro Val Ser
1           5           10           15

```

```

Glu Val Ala Ser Ile Leu Gln Ala Asp Leu Gln Asn Gly Leu Asn Lys
20           25           30

```

```

Cys Glu Val Ser His Arg Arg Ala Phe His Gly Trp Asn Glu Phe Asp
35           40           45

```

Ile Ser Glu Asp Glu Pro Leu Trp Lys Lys Tyr Ile Ser Gln Phe Lys  
50 55 60

Asn Pro Leu Ile Met Leu Leu Leu Ala Ser Ala Val Ile Ser Val Leu  
65 70 75 80

Met His Gln Phe Asp Asp Ala Val Ser Ile Thr Val Ala Ile Leu Ile  
85 90 95

Val Val Thr Val Ala Phe Val Gln Glu Tyr Arg Ser Glu Lys Ser Leu  
100 105 110

Glu Glu Leu Ser Lys Leu Val Pro Pro Glu Cys His Cys Val Arg Glu  
115 120 125

Gly Lys Leu Glu His Thr Leu Ala Arg Asp Leu Val Pro Gly Asp Thr  
130 135 140

Val Cys Leu Ser Val Gly Asp Arg Val Pro Ala Asp Leu Arg Leu Phe  
145 150 155 160

Glu Ala Val Asp Leu Ser Ile Asp Glu Ser Ser Leu Thr Gly Glu Thr  
165 170 175

Thr Pro Cys Ser Lys Val Thr Ala Pro Gln Pro Ala Ala Thr Asn Gly  
180 185 190

Asp Leu Ala Ser Arg Ser Asn Ile Ala Phe Met Gly Thr Leu Val Arg  
195 200 205

Cys Gly Lys Ala Lys Gly Val Val Ile Gly Thr Gly Glu Asn Ser Glu  
210 215 220

Phe Gly Glu Val Phe Lys Met Met Gln Ala Glu Glu Ala Pro Lys Thr  
225 230 235 240

Pro Leu Gln Lys Ser Met Asp Leu Leu Gly Lys Gln Leu Ser Phe Tyr  
245 250 255

Ser Phe Gly Ile Ile Gly Ile Ile Met Leu Val Gly Trp Leu Leu Gly  
260 265 270

Lys Asp Ile Leu Glu Met Phe Thr Ile Ser Val Ser Leu Ala Val Ala  
275 280 285

Ala Ile Pro Glu Gly Leu Pro Ile Val Val Thr Val Thr Leu Ala Leu  
290 295 300

Gly Val Met Arg Met Val Lys Lys Arg Ala Ile Val Lys Lys Leu Pro  
305 310 315 320

Ile Val Glu Thr Leu Gly Cys Cys Asn Val Ile Cys Ser Asp Lys Thr  
325 330 335

Gly Thr Leu Thr Lys Asn Glu Met Thr Val Thr His Ile Phe Thr Ser  
340 345 350

Asp Gly Leu His Ala Glu Val Thr Gly Val Gly Tyr Asn Gln Phe Gly  
355 360 365

Glu Val Ile Val Asp Gly Asp Val Val His Gly Phe Tyr Asn Pro Ala  
370 375 380

Val Ser Arg Ile Val Glu Ala Gly Cys Val Cys Asn Asp Ala Val Ile  
385 390 395 400

Arg Asn Asn Thr Leu Met Gly Lys Pro Thr Glu Gly Ala Leu Ile Ala  
405 410 415

Leu Ala Met Lys Met Gly Leu Asp Gly Leu Gln Gln Asp Tyr Ile Arg  
420 425 430

Lys Ala Glu Tyr Pro Phe Ser Ser Glu Gln Lys Trp Met Ala Val Lys  
435 440 445

Cys Val His Arg Thr Gln Gln Asp Arg Pro Glu Ile Cys Phe Met Lys  
450 455 460

Gly Ala Tyr Glu Gln Val Ile Lys Tyr Cys Thr Thr Tyr Gln Ser Lys  
465 470 475 480

Gly Gln Thr Leu Thr Leu Thr Gln Gln Gln Arg Asp Val Tyr Gln Gln  
485 490 495

Glu Lys Ala Arg Met Gly Ser Ala Gly Leu Arg Val Leu Ala Leu Ala



500

505

510

Ser Gly Pro Glu Leu Gly Gln Leu Thr Phe Leu Gly Leu Val Gly Ile  
 515 520 525

Ile Asp Pro Pro Arg Thr Gly Val Lys Glu Ala Val Thr Thr Leu Ile  
 530 535 540

Ala Ser Gly Val Ser Ile Lys Met Ile Thr Gly Asp Ser Gln Glu Thr  
 545 550 555 560

Ala Val Ala Ile Ala Ser Arg Leu Gly Leu Tyr Ser Lys Thr Ser Gln  
 565 570 575

Ser Val Ser Gly Glu Glu Ile Asp Ala Met Asp Val Gln Gln Leu Ser  
 580 585 590

Gln Ile Val Pro Lys Val Ala Val Phe Tyr Arg Ala Ser Pro Arg His  
 595 600 605

Lys Met Lys Ile Ile Lys Ser Leu Gln Lys Asn Gly Ser Val Val Ala  
 610 615 620

Met Thr Gly Asp Gly Val Asn Asp Ala Val Ala Leu Lys Ala Ala Asp  
 625 630 635 640

Ile Gly Val Ala Met Gly Gln Thr Gly Thr Asp Val Cys Lys Glu Ala  
 645 650 655

Ala Asp Met Ile Leu Val Asp Asp Asp Phe Gln Thr Ile Met Ser Ala  
 660 665 670

Ile Glu Glu Gly Lys Gly Ile Tyr Asn Asn Ile Lys Asn Phe Val Arg  
 675 680 685

Phe Gln Leu Ser Thr Ser Ile Ala Ala Leu Thr Leu Ile Ser Leu Ala  
 690 695 700

Thr Leu Met Asn Phe Pro Asn Pro Leu Asn Ala Met Gln Ile Leu Trp  
 705 710 715 720

Ile Asn Ile Ile Met Asp Gly Pro Pro Ala Gln Ser Leu Gly Val Glu  
 725 730 735

Pro Val Asp Lys Asp Val Ile Arg Lys Pro Pro Arg Asn Trp Lys Asp  
740 745 750

Ser Ile Leu Thr Lys Asn Leu Ile Leu Lys Ile Leu Val Ser Ser Ile  
755 760 765

Ile Ile Val Cys Gly Thr Leu Phe Val Phe Trp Arg Glu Leu Arg Asp  
770 775 780

Asn Val Ile Thr Pro Arg Asp Thr Thr Met Thr Phe Thr Cys Phe Val  
785 790 795 800

Phe Phe Asp Met Phe Asn Ala Leu Ser Ser Arg Ser Gln Thr Lys Ser  
805 810 815

Val Phe Glu Ile Gly Leu Cys Ser Asn Arg Met Phe Cys Tyr Ala Val  
820 825 830

Leu Gly Ser Ile Met Gly Gln Leu Leu Val Ile Tyr Phe Pro Pro Leu  
835 840 845

Gln Lys Val Phe Gln Thr Glu Ser Leu Ser Ile Leu Asp Leu Leu Phe  
850 855 860

Leu Leu Gly Leu Thr Ser Ser Val Cys Ile Val Ala Glu Ile Ile Lys  
865 870 875 880

Lys Val Glu Arg Ser Arg Glu Lys Ile Gln Lys His Val Ser Ser Thr  
885 890 895

Ser Ser Ser Phe Leu Glu Val  
900

<210> 209  
<211> 1284  
<212> DNA  
<213> human organism

<400> 209  
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<210> 210  
 <211> 427  
 <212> PRT  
 <213> human organism

<400> 210

Met	Gly	Tyr	Gln	Arg	Gln	Glu	Pro	Val	Ile	Pro	Pro	Gln	Arg	Gly	Leu
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Pro	Tyr	Ser	Met	Lys	Gln	Ala	Gly	Phe	Pro	Leu	Gly	Ile	Leu	Leu	Leu
			20					25					30		

Phe	Trp	Val	Ser	Tyr	Val	Thr	Asp	Phe	Ser	Leu	Val	Leu	Leu	Ile	Lys
		35					40					45			

Gly Gly Ala Leu Ser Gly Thr Asp Thr Tyr Gln Ser Leu Val Asn Lys  
50 55 60

Thr Phe Gly Phe Pro Gly Tyr Leu Leu Leu Ser Val Leu Gln Phe Leu  
65 70 75 80

Tyr Pro Phe Ile Ala Met Ile Ser Tyr Asn Ile Ile Ala Gly Asp Thr  
85 90 95

Leu Ser Lys Val Phe Gln Arg Ile Pro Gly Val Asp Pro Glu Asn Val  
100 105 110

Phe Ile Gly Arg His Phe Ile Ile Gly Leu Ser Thr Val Thr Phe Thr  
115 120 125

Leu Pro Leu Ser Leu Tyr Arg Asn Ile Ala Lys Leu Gly Lys Val Ser  
130 135 140

Leu Ile Ser Thr Gly Leu Thr Thr Leu Ile Leu Gly Ile Val Met Ala  
145 150 155 160

Arg Ala Ile Ser Leu Gly Pro His Ile Pro Lys Thr Glu Asp Ala Trp  
165 170 175

Val Phe Ala Lys Pro Asn Ala Ile Gln Ala Val Gly Val Met Ser Phe  
180 185 190

Ala Phe Ile Cys His His Asn Ser Phe Leu Val Tyr Ser Ser Leu Glu  
195 200 205

Glu Pro Thr Val Ala Lys Trp Ser Arg Leu Ile His Met Ser Ile Val  
210 215 220

Ile Ser Val Phe Ile Cys Ile Phe Phe Ala Thr Cys Gly Tyr Leu Thr  
225 230 235 240

Phe Thr Gly Phe Thr Gln Gly Asp Leu Phe Glu Asn Tyr Cys Arg Asn  
245 250 255

Asp Asp Leu Val Thr Phe Gly Arg Phe Cys Tyr Gly Val Thr Val Ile  
260 265 270

Leu Thr Tyr Pro Met Glu Cys Phe Val Thr Arg Glu Val Ile Ala Asn  
 275 280 285

Val Phe Phe Gly Gly Asn Leu Ser Ser Val Phe His Ile Val Val Thr  
 290 295 300

Val Met Val Ile Thr Val Ala Thr Leu Val Ser Leu Leu Ile Asp Cys  
 305 310 315 320

Leu Gly Ile Val Leu Glu Leu Asn Gly Val Leu Cys Ala Thr Pro Leu  
 325 330 335

Ile Phe Ile Ile Pro Ser Ala Cys Tyr Leu Lys Leu Ser Glu Glu Pro  
 340 345 350

Arg Thr His Ser Asp Lys Ile Met Ser Cys Val Met Leu Pro Ile Gly  
 355 360 365

Ala Val Val Met Val Phe Gly Phe Val Met Ala Ile Thr Asn Thr Gln  
 370 375 380

Asp Cys Thr His Gly Gln Glu Met Phe Tyr Cys Phe Pro Asp Asn Phe  
 385 390 395 400

Ser Leu Thr Asn Thr Ser Glu Ser His Val Gln Gln Thr Thr Gln Leu  
 405 410 415

Ser Thr Leu Asn Ile Ser Ile Phe Gln Leu Glu  
 420 425

<210> 211

<211> 1203

<212> DNA

<213> human organism

<400> 211

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tttccagggt atctgctcct ctctgttctt cagtttttgt atccttttat agcaatgata 180

agttacaata taatagctgg agatactttg agcaaagttt ttcaaagaat cccaggagtt 240

gacccctgaaa acgtgtttat tggtcgccac ttcattattg gactttccac agttaccttt 300

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taa 1203

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<210> 212
<211> 400
<212> PRT
<213> human organism

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<400> 212

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Met Gly Tyr Gln Arg Gln Glu Pro Val Ile Pro Pro Gln Phe Ser Leu
1           5           10           15

```

```

Val Leu Leu Ile Lys Gly Gly Ala Leu Ser Gly Thr Asp Thr Tyr Gln
          20           25           30

```

```

Ser Leu Val Asn Lys Thr Phe Gly Phe Pro Gly Tyr Leu Leu Leu Ser
          35           40           45

```

```

Val Leu Gln Phe Leu Tyr Pro Phe Ile Ala Met Ile Ser Tyr Asn Ile
          50           55           60

```

```

Ile Ala Gly Asp Thr Leu Ser Lys Val Phe Gln Arg Ile Pro Gly Val

```

65

70

75

80

Asp Pro Glu Asn Val Phe Ile Gly Arg His Phe Ile Ile Gly Leu Ser  
85 90 95

Thr Val Thr Phe Thr Leu Pro Leu Ser Leu Tyr Arg Asn Ile Ala Lys  
100 105 110

Leu Gly Lys Val Ser Leu Ile Ser Thr Gly Leu Thr Thr Leu Ile Leu  
115 120 125

Gly Ile Val Met Ala Arg Ala Ile Ser Leu Gly Pro His Ile Pro Lys  
130 135 140

Thr Glu Asp Ala Trp Val Phe Ala Lys Pro Asn Ala Ile Gln Ala Val  
145 150 155 160

Gly Val Met Ser Phe Ala Phe Ile Cys His His Asn Ser Phe Leu Val  
165 170 175

Tyr Ser Ser Leu Glu Glu Pro Thr Val Ala Lys Trp Ser Arg Leu Ile  
180 185 190

His Met Ser Ile Val Ile Ser Val Phe Ile Cys Ile Phe Phe Ala Thr  
195 200 205

Cys Gly Tyr Leu Thr Phe Thr Gly Phe Thr Gln Gly Asp Leu Phe Glu  
210 215 220

Asn Tyr Cys Arg Asn Asp Asp Leu Val Thr Phe Gly Arg Phe Cys Tyr  
225 230 235 240

Gly Val Thr Val Ile Leu Thr Tyr Pro Met Glu Cys Phe Val Thr Arg  
245 250 255

Glu Val Ile Ala Asn Val Phe Phe Gly Gly Asn Leu Ser Ser Val Phe  
260 265 270

His Ile Val Val Thr Val Met Val Ile Thr Val Ala Thr Leu Val Ser  
275 280 285

Leu Leu Ile Asp Cys Leu Gly Ile Val Leu Glu Leu Asn Gly Val Leu  
290 295 300

Cys Ala Thr Pro Leu Ile Phe Ile Ile Pro Ser Ala Cys Tyr Leu Lys  
 305 310 315 320

Leu Ser Glu Glu Pro Arg Thr His Ser Asp Lys Ile Met Ser Cys Val  
 325 330 335

Met Leu Pro Ile Gly Ala Val Val Met Val Phe Gly Phe Val Met Ala  
 340 345 350

Ile Thr Asn Thr Gln Asp Cys Thr His Gly Gln Glu Met Phe Tyr Cys  
 355 360 365

Phe Pro Asp Asn Phe Ser Leu Thr Asn Thr Ser Glu Ser His Val Gln  
 370 375 380

Gln Thr Thr Gln Leu Ser Thr Leu Asn Ile Ser Ile Phe Gln Leu Glu  
 385 390 395 400

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 gaaccacag tagctaagtg gtccgcctt atccatatgt ccatcgtgat ttctgtattt 540  
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 gggcaggaaa tgttctactg ctttctgac aatttctctc tcacaaatac ctcagagtct 1080  
 catgttcagc agacaacaca actttctact ttaaataatta gtatctttca actcgagtaa 1140

<210> 214

<211> 379

<212> PRT

<213> human organism

<400> 214

Met Gly Tyr Gln Arg Gln Glu Pro Val Ile Pro Pro Gln Val Asn Lys  
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Thr Phe Gly Phe Pro Gly Tyr Leu Leu Leu Ser Val Leu Gln Phe Leu  
 20 25 30

Tyr Pro Phe Ile Ala Met Ile Ser Tyr Asn Ile Ile Ala Gly Asp Thr  
 35 40 45

Leu Ser Lys Val Phe Gln Arg Ile Pro Gly Val Asp Pro Glu Asn Val  
 50 55 60

Phe Ile Gly Arg His Phe Ile Ile Gly Leu Ser Thr Val Thr Phe Thr  
 65 70 75 80

Leu Pro Leu Ser Leu Tyr Arg Asn Ile Ala Lys Leu Gly Lys Val Ser  
 85 90 95

Leu Ile Ser Thr Gly Leu Thr Thr Leu Ile Leu Gly Ile Val Met Ala  
 100 105 110

Arg Ala Ile Ser Leu Gly Pro His Ile Pro Lys Thr Glu Asp Ala Trp  
 115 120 125

Val Phe Ala Lys Pro Asn Ala Ile Gln Ala Val Gly Val Met Ser Phe  
 130 135 140

Ala Phe Ile Cys His His Asn Ser Phe Leu Val Tyr Ser Ser Leu Glu  
145 150 155 160

Glu Pro Thr Val Ala Lys Trp Ser Arg Leu Ile His Met Ser Ile Val  
165 170 175

Ile Ser Val Phe Ile Cys Ile Phe Phe Ala Thr Cys Gly Tyr Leu Thr  
180 185 190

Phe Thr Gly Phe Thr Gln Gly Asp Leu Phe Glu Asn Tyr Cys Arg Asn  
195 200 205

Asp Asp Leu Val Thr Phe Gly Arg Phe Cys Tyr Gly Val Thr Val Ile  
210 215 220

Leu Thr Tyr Pro Met Glu Cys Phe Val Thr Arg Glu Val Ile Ala Asn  
225 230 235 240

Val Phe Phe Gly Gly Asn Leu Ser Ser Val Phe His Ile Val Val Thr  
245 250 255

Val Met Val Ile Thr Val Ala Thr Leu Val Ser Leu Leu Ile Asp Cys  
260 265 270

Leu Gly Ile Val Leu Glu Leu Asn Gly Val Leu Cys Ala Thr Pro Leu  
275 280 285

Ile Phe Ile Ile Pro Ser Ala Cys Tyr Leu Lys Leu Ser Glu Glu Pro  
290 295 300

Arg Thr His Ser Asp Lys Ile Met Ser Cys Val Met Leu Pro Ile Gly  
305 310 315 320

Ala Val Val Met Val Phe Gly Phe Val Met Ala Ile Thr Asn Thr Gln  
325 330 335

Asp Cys Thr His Gly Gln Glu Met Phe Tyr Cys Phe Pro Asp Asn Phe  
340 345 350

Ser Leu Thr Asn Thr Ser Glu Ser His Val Gln Gln Thr Thr Gln Leu  
355 360 365

Ser Thr Leu Asn Ile Ser Ile Phe Gln Leu Glu

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<211> 462  
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<400> 216

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Asp Asp Arg Glu Thr Leu Val Ser Glu His Glu Tyr Lys Glu Lys Thr  
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Cys Gln Ser Ala Ala Leu Phe Asn Val Val Asn Ser Ile Ile Gly Ser  
35 40 45

Gly Ile Ile Gly Leu Pro Tyr Ser Met Lys Gln Ala Gly Phe Pro Leu  
50 55 60

Gly Ile Leu Leu Leu Phe Trp Val Ser Tyr Val Thr Asp Phe Ser Leu  
65 70 75 80

Val Leu Leu Ile Lys Gly Gly Ala Leu Ser Gly Thr Asp Thr Tyr Gln  
85 90 95

Ser Leu Val Asn Lys Thr Phe Gly Phe Pro Gly Tyr Leu Leu Leu Ser  
100 105 110

Val Leu Gln Phe Leu Tyr Pro Phe Ile Ala Met Ile Ser Tyr Asn Ile  
115 120 125

Ile Ala Gly Asp Thr Leu Ser Lys Val Phe Gln Arg Ile Pro Gly Val  
130 135 140

Asp Pro Glu Asn Val Phe Ile Gly Arg His Phe Ile Ile Gly Leu Ser  
145 150 155 160

Thr Val Thr Phe Thr Leu Pro Leu Ser Leu Tyr Arg Asn Ile Ala Lys  
165 170 175

Leu Gly Lys Val Ser Leu Ile Ser Thr Gly Leu Thr Thr Leu Ile Leu  
180 185 190

Gly Ile Val Met Ala Arg Ala Ile Ser Leu Gly Pro His Ile Pro Lys

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Thr Glu Asp Ala Trp Val Phe Ala Lys Pro Asn Ala Ile Gln Ala Val		
210	215	220
Gly Val Met Ser Phe Ala Phe Ile Cys His His Asn Ser Phe Leu Val		
225	230	235 240
Tyr Ser Ser Leu Glu Glu Pro Thr Val Ala Lys Trp Ser Arg Leu Ile		
245	250	255
His Met Ser Ile Val Ile Ser Val Phe Ile Cys Ile Phe Phe Ala Thr		
260	265	270
Cys Gly Tyr Leu Thr Phe Thr Gly Phe Thr Gln Gly Asp Leu Phe Glu		
275	280	285
Asn Tyr Cys Arg Asn Asp Asp Leu Val Thr Phe Gly Arg Phe Cys Tyr		
290	295	300
Gly Val Thr Val Ile Leu Thr Tyr Pro Met Glu Cys Phe Val Thr Arg		
305	310	315 320
Glu Val Ile Ala Asn Val Phe Phe Gly Gly Asn Leu Ser Ser Val Phe		
325	330	335
His Ile Val Val Thr Val Met Val Ile Thr Val Ala Thr Leu Val Ser		
340	345	350
Leu Leu Ile Asp Cys Leu Gly Ile Val Leu Glu Leu Asn Gly Val Leu		
355	360	365
Cys Ala Thr Pro Leu Ile Phe Ile Ile Pro Ser Ala Cys Tyr Leu Lys		
370	375	380
Leu Ser Glu Glu Pro Arg Thr His Ser Asp Lys Ile Met Ser Cys Val		
385	390	395 400
Met Leu Pro Ile Gly Ala Val Val Met Val Phe Gly Phe Val Met Ala		
405	410	415
Ile Thr Asn Thr Gln Asp Cys Thr His Gly Gln Glu Met Phe Tyr Cys		
420	425	430

Phe Pro Asp Asn Phe Ser Leu Thr Asn Thr Ser Glu Ser His Val Gln  
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Gln Thr Thr Gln Leu Ser Thr Leu Asn Ile Ser Ile Phe Gln  
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 <212> DNA  
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<211> 1166
<212> PRT
<213> human organism

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<400> 218

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Ala His Thr Thr Glu Lys Pro Thr Asp Ala Tyr Gly Glu Leu Asp Phe
          20           25           30

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Thr Gly Ala Gly Arg Lys His Ser Asn Phe Leu Arg Leu Ser Asp Arg
    35           40           45

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Thr Asp Pro Ala Ala Val Tyr Ser Leu Val Thr Arg Thr Trp Gly Phe
    50           55           60

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Arg Ala Pro Asn Leu Val Val Ser Val Leu Gly Gly Ser Gly Gly Pro
65           70           75           80

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Val Leu Gln Thr Trp Leu Gln Asp Leu Leu Arg Arg Gly Leu Val Arg
          85           90           95

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Ala Ala Gln Ser Thr Gly Ala Trp Ile Val Thr Gly Gly Leu His Thr
    100           105           110

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Gly Ile Gly Arg His Val Gly Val Ala Val Arg Asp His Gln Met Ala

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115	120	125
Ser Thr Gly Gly Thr Lys Val Val Ala Met Gly Val Ala Pro Trp Gly		
130	135	140
Val Val Arg Asn Arg Asp Thr Leu Ile Asn Pro Lys Gly Ser Phe Pro		
145	150	155
Ala Arg Tyr Arg Trp Arg Gly Asp Pro Glu Asp Gly Val Gln Phe Pro		
165	170	175
Leu Asp Tyr Asn Tyr Ser Ala Phe Phe Leu Val Asp Asp Gly Thr His		
180	185	190
Gly Cys Leu Gly Gly Glu Asn Arg Phe Arg Leu Arg Leu Glu Ser Tyr		
195	200	205
Ile Ser Gln Gln Lys Thr Gly Val Gly Gly Thr Gly Ile Asp Ile Pro		
210	215	220
Val Leu Leu Leu Leu Ile Asp Gly Asp Glu Lys Met Leu Thr Arg Ile		
225	230	235
Glu Asn Ala Thr Gln Ala Gln Leu Pro Cys Leu Leu Val Ala Gly Ser		
245	250	255
Gly Gly Ala Ala Asp Cys Leu Ala Glu Thr Leu Glu Asp Thr Leu Ala		
260	265	270
Pro Gly Ser Gly Gly Ala Arg Gln Gly Glu Ala Arg Asp Arg Ile Arg		
275	280	285
Arg Phe Phe Pro Lys Gly Asp Leu Glu Val Leu Gln Ala Gln Val Glu		
290	295	300
Arg Ile Met Thr Arg Lys Glu Leu Leu Thr Val Tyr Ser Ser Glu Asp		
305	310	315
Gly Ser Glu Glu Phe Glu Thr Ile Val Leu Lys Ala Leu Val Lys Ala		
325	330	335
Cys Gly Ser Ser Glu Ala Ser Ala Tyr Leu Asp Glu Leu Arg Leu Ala		
340	345	350



Val Ala Trp Asn Arg Val Asp Ile Ala Gln Ser Glu Leu Phe Arg Gly  
355 360 365

Asp Ile Gln Trp Arg Ser Phe His Leu Glu Ala Ser Leu Met Asp Ala  
370 375 380

Leu Leu Asn Asp Arg Pro Glu Phe Val Arg Leu Leu Ile Ser His Gly  
385 390 395 400

Leu Ser Leu Gly His Phe Leu Thr Pro Met Arg Leu Ala Gln Leu Tyr  
405 410 415

Ser Ala Ala Pro Ser Asn Ser Leu Ile Arg Asn Leu Leu Asp Gln Ala  
420 425 430

Ser His Ser Ala Gly Thr Lys Ala Pro Ala Leu Lys Gly Gly Ala Ala  
435 440 445

Glu Leu Arg Pro Pro Asp Val Gly His Val Leu Arg Met Leu Leu Gly  
450 455 460

Lys Met Cys Ala Pro Arg Tyr Pro Ser Gly Gly Ala Trp Asp Pro His  
465 470 475 480

Pro Gly Gln Gly Phe Gly Glu Ser Met Tyr Leu Leu Ser Asp Lys Ala  
485 490 495

Thr Ser Pro Leu Ser Leu Asp Ala Gly Leu Gly Gln Ala Pro Trp Ser  
500 505 510

Asp Leu Leu Leu Trp Ala Leu Leu Leu Asn Arg Ala Gln Met Ala Met  
515 520 525

Tyr Phe Trp Glu Met Gly Ser Asn Ala Val Ser Ser Ala Leu Gly Ala  
530 535 540

Cys Leu Leu Leu Arg Val Met Ala Arg Leu Glu Pro Asp Ala Glu Glu  
545 550 555 560

Ala Ala Arg Arg Lys Asp Leu Ala Phe Lys Phe Glu Gly Met Gly Val  
565 570 575

Asp Leu Phe Gly Glu Cys Tyr Arg Ser Ser Glu Val Arg Ala Ala Arg  
580 585 590

Leu Leu Leu Arg Arg Cys Pro Leu Trp Gly Asp Ala Thr Cys Leu Gln  
595 600 605

Leu Ala Met Gln Ala Asp Ala Arg Ala Phe Phe Ala Gln Asp Gly Val  
610 615 620

Gln Ser Leu Leu Thr Gln Lys Trp Trp Gly Asp Met Ala Ser Thr Thr  
625 630 635 640

Pro Ile Trp Ala Leu Val Leu Ala Phe Phe Cys Pro Pro Leu Ile Tyr  
645 650 655

Thr Arg Leu Ile Thr Phe Arg Lys Ser Glu Glu Glu Pro Thr Arg Glu  
660 665 670

Glu Leu Glu Phe Asp Met Asp Ser Val Ile Asn Gly Glu Gly Pro Val  
675 680 685

Gly Thr Ala Asp Pro Ala Glu Lys Thr Pro Leu Gly Val Pro Arg Gln  
690 695 700

Ser Gly Arg Pro Gly Cys Cys Gly Gly Arg Cys Gly Gly Arg Arg Cys  
705 710 715 720

Leu Arg Arg Trp Phe His Phe Trp Gly Ala Pro Val Thr Ile Phe Met  
725 730 735

Gly Asn Val Val Ser Tyr Leu Leu Phe Leu Leu Leu Phe Ser Arg Val  
740 745 750

Leu Leu Val Asp Phe Gln Pro Ala Pro Pro Gly Ser Leu Glu Leu Leu  
755 760 765

Leu Tyr Phe Trp Ala Phe Thr Leu Leu Cys Glu Glu Leu Arg Gln Gly  
770 775 780

Leu Ser Gly Gly Gly Gly Ser Leu Ala Ser Gly Gly Pro Gly Pro Gly  
785 790 795 800

His Ala Ser Leu Ser Gln Arg Leu Arg Leu Tyr Leu Ala Asp Ser Trp  
805 810 815

Asn Gln Cys Asp Leu Val Ala Leu Thr Cys Phe Leu Leu Gly Val Gly  
820 825 830

Cys Arg Leu Thr Pro Gly Leu Tyr His Leu Gly Arg Thr Val Leu Cys  
835 840 845

Ile Asp Phe Met Val Phe Thr Val Arg Leu Leu His Ile Phe Thr Val  
850 855 860

Asn Lys Gln Leu Gly Pro Lys Ile Val Ile Val Ser Lys Met Met Lys  
865 870 875 880

Asp Val Phe Phe Phe Leu Phe Phe Leu Gly Val Trp Leu Val Ala Tyr  
885 890 895

Gly Val Ala Thr Glu Gly Leu Leu Arg Pro Arg Asp Ser Asp Phe Pro  
900 905 910

Ser Ile Leu Arg Arg Val Phe Tyr Arg Pro Tyr Leu Gln Ile Phe Gly  
915 920 925

Gln Ile Pro Gln Glu Asp Met Asp Val Ala Leu Met Glu His Ser Asn  
930 935 940

Cys Ser Ser Glu Pro Gly Phe Trp Ala His Pro Pro Gly Ala Gln Ala  
945 950 955 960

Gly Thr Cys Val Ser Gln Tyr Ala Asn Trp Leu Val Val Leu Leu Leu  
965 970 975

Val Ile Phe Leu Leu Val Ala Asn Ile Leu Leu Val Asn Leu Leu Ile  
980 985 990

Ala Met Phe Ser Tyr Thr Phe Gly Lys Val Gln Gly Asn Ser Asp Leu  
995 1000 1005

Tyr Trp Lys Ala Gln Arg Tyr Arg Leu Ile Arg Glu Phe His Ser  
1010 1015 1020

Arg Pro Ala Leu Ala Pro Pro Phe Ile Val Ile Ser His Leu Arg

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Ser Ser Pro Ala Leu Glu His Phe Arg Val Tyr Leu Ser Lys Glu 1055 1060 1065		
Ala Glu Arg Lys Leu Leu Thr Trp Glu Ser Val His Lys Glu Asn 1070 1075 1080		
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Arg Glu Val Gln Gln Cys Ser Arg Val Leu Gly Trp Val Ala Glu 1130 1135 1140		
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Pro Asp Leu Pro Gly Ser Lys Asp 1160 1165		

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<400> 219

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ctgggcatcg accgggacat cgacaccctc atcctgaaag gtattgcgca gcgatgcacg 420  
 gccatcaagt accacttttc tcagcccatc cgcttgcgaa acattccttt taatttaacc 480  
 aagaccatac agcaagatga gtggcacctg cttcatttaa gaagaatcac tgctggcttc 540  
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 tgggaggaga gcttgacca gcacgtggct ggactcctgt tcctcatgac agggatatatt 660  
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 aagctaattt atagcctgcc tgctgatgtg gaacatggtt acagctggtc catcttttgc 780  
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<210> 220  
 <211> 297  
 <212> PRT  
 <213> human organism

<400> 220

Met Glu Pro Arg Ala Leu Val Thr Ala Leu Ser Leu Gly Leu Ser Leu  
 1 5 10 15

Cys Ser Leu Gly Leu Leu Val Thr Ala Ile Phe Thr Asp His Trp Tyr  
 20 25 30

Glu Thr Asp Pro Arg Arg His Lys Glu Ser Cys Glu Arg Ser Arg Ala  
 35 40 45

Gly Ala Asp Pro Pro Asp Gln Lys Asn Arg Leu Met Pro Leu Ser His  
 50 55 60

Leu Pro Leu Arg Asp Ser Pro Pro Leu Gly Arg Arg Leu Leu Pro Gly  
 65 70 75 80

Gly Pro Gly Arg Ala Asp Pro Glu Ser Trp Arg Ser Leu Leu Gly Leu  
 85 90 95

Gly Gly Leu Asp Ala Glu Cys Gly Arg Pro Leu Phe Ala Thr Tyr Ser  
 100 105 110

Gly Leu Trp Arg Lys Cys Tyr Phe Leu Gly Ile Asp Arg Asp Ile Asp  
 115 120 125

Thr Leu Ile Leu Lys Gly Ile Ala Gln Arg Cys Thr Ala Ile Lys Tyr  
 130 135 140

His Phe Ser Gln Pro Ile Arg Leu Arg Asn Ile Pro Phe Asn Leu Thr  
 145 150 155 160

Lys Thr Ile Gln Gln Asp Glu Trp His Leu Leu His Leu Arg Arg Ile  
 165 170 175

Thr Ala Gly Phe Leu Gly Met Ala Val Ala Val Leu Leu Cys Gly Cys  
 180 185 190

Ile Val Ala Thr Val Ser Phe Phe Trp Glu Glu Ser Leu Thr Gln His  
 195 200 205

Val Ala Gly Leu Leu Phe Leu Met Thr Gly Ile Phe Cys Thr Ile Ser  
 210 215 220

Leu Cys Thr Tyr Ala Ala Ser Ile Ser Tyr Asp Leu Asn Arg Leu Pro  
 225 230 235 240

Lys Leu Ile Tyr Ser Leu Pro Ala Asp Val Glu His Gly Tyr Ser Trp  
 245 250 255

Ser Ile Phe Cys Ala Trp Cys Ser Leu Gly Phe Ile Val Ala Ala Gly  
 260 265 270

Gly Leu Cys Ile Ala Tyr Pro Phe Ile Ser Arg Thr Lys Ile Ala Gln  
 275 280 285

Leu Lys Ser Gly Arg Asp Ser Thr Val  
 290 295

<210> 221  
 <211> 1134  
 <212> DNA  
 <213> human organism

<400> 221  
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aaagagtggc agaggatgct gcagctgatt cagagtaggc tacaagaaga gcattcactt 420  
caagatgtga tatttaaaag tgcttttaaa agtacatcaa cagctcttcc accaagagaa 480  
gatgattcat cacagtctcc aaatgcatgc agaattcatg gccatctata tgtcaataaa 540  
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catttggcag cacttgtaa ccatgaatct tacaattttt ctcatagaat agatcatttg 660  
tcttttggag agcttggtcc agcaattatt aatcctttag atggaactga aaaaattgct 720  
atagatcaca accagatggt ccaatatttt attacagttg tgccaacaaa actacatata 780  
tataaaatat cagcagacac ccatcagttt tctgtgacag aaagggaacg tatcattaac 840  
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atggtgacag ttactgagga gcacatgcca ttctggcagt tttttgtaag actctgtggt 960  
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gaaataattt gctgtcgttt cagacttggg tctataaac ctgtcaattc tgttcctttt 1080  
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<210> 222  
<211> 377  
<212> PRT  
<213> human organism

<400> 222

Met Arg Arg Leu Asn Arg Lys Lys Thr Leu Ser Leu Val Lys Glu Leu  
1 5 10 15

Asp Ala Phe Pro Lys Val Pro Glu Ser Tyr Val Glu Thr Ser Ala Ser  
20 25 30

Gly Gly Thr Val Ser Leu Ile Ala Phe Thr Thr Met Ala Leu Leu Thr  
35 40 45

Ile Met Glu Phe Ser Val Tyr Gln Asp Thr Trp Met Lys Tyr Glu Tyr  
50 55 60

Glu Val Asp Lys Asp Phe Ser Ser Lys Leu Arg Ile Asn Ile Asp Ile



65		70		75		80									
Thr	Val	Ala	Met	Lys	Cys	Gln	Tyr	Val	Gly	Ala	Asp	Val	Leu	Asp	Leu
			85						90					95	
Ala	Glu	Thr	Met	Val	Ala	Ser	Ala	Asp	Gly	Leu	Val	Tyr	Glu	Pro	Thr
			100					105					110		
Val	Phe	Asp	Leu	Ser	Pro	Gln	Gln	Lys	Glu	Trp	Gln	Arg	Met	Leu	Gln
		115					120					125			
Leu	Ile	Gln	Ser	Arg	Leu	Gln	Glu	Glu	His	Ser	Leu	Gln	Asp	Val	Ile
	130					135					140				
Phe	Lys	Ser	Ala	Phe	Lys	Ser	Thr	Ser	Thr	Ala	Leu	Pro	Pro	Arg	Glu
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Asp	Asp	Ser	Ser	Gln	Ser	Pro	Asn	Ala	Cys	Arg	Ile	His	Gly	His	Leu
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Tyr	Val	Asn	Lys	Val	Ala	Gly	Asn	Phe	His	Ile	Thr	Val	Gly	Lys	Ala
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Ile	Pro	His	Pro	Arg	Gly	His	Ala	His	Leu	Ala	Ala	Leu	Val	Asn	His
		195					200					205			
Glu	Ser	Tyr	Asn	Phe	Ser	His	Arg	Ile	Asp	His	Leu	Ser	Phe	Gly	Glu
	210					215					220				
Leu	Val	Pro	Ala	Ile	Ile	Asn	Pro	Leu	Asp	Gly	Thr	Glu	Lys	Ile	Ala
225					230					235					240
Ile	Asp	His	Asn	Gln	Met	Phe	Gln	Tyr	Phe	Ile	Thr	Val	Val	Pro	Thr
				245					250					255	
Lys	Leu	His	Thr	Tyr	Lys	Ile	Ser	Ala	Asp	Thr	His	Gln	Phe	Ser	Val
			260					265					270		
Thr	Glu	Arg	Glu	Arg	Ile	Ile	Asn	His	Ala	Ala	Gly	Ser	His	Gly	Val
		275					280					285			
Ser	Gly	Ile	Phe	Met	Lys	Tyr	Asp	Leu	Ser	Ser	Leu	Met	Val	Thr	Val
	290					295					300				

Thr Glu Glu His Met Pro Phe Trp Gln Phe Phe Val Arg Leu Cys Gly  
 305 310 315 320

Ile Val Gly Gly Ile Phe Ser Thr Thr Gly Met Leu His Gly Ile Gly  
 325 330 335

Lys Phe Ile Val Glu Ile Ile Cys Cys Arg Phe Arg Leu Gly Ser Tyr  
 340 345 350

Lys Pro Val Asn Ser Val Pro Phe Glu Asp Gly His Thr Asp Asn His  
 355 360 365

Leu Pro Leu Leu Glu Asn Asn Thr His  
 370 375

<210> 223  
 <211> 3407  
 <212> DNA  
 <213> human organism

<400> 223  
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<210> 224

<211> 766

<212> PRT

<213> human organism

<400> 224

Met Lys Thr Pro Trp Lys Ile Leu Leu Gly Leu Leu Gly Ala Ala Ala  
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Leu Val Thr Ile Ile Thr Val Pro Val Val Leu Leu Asn Lys Gly Thr  
 20 25 30

Asp Asp Ala Thr Ala Asp Ser Arg Lys Thr Tyr Thr Leu Thr Asp Tyr  
 35 40 45

Leu Lys Asn Thr Tyr Arg Leu Lys Leu Tyr Ser Leu Arg Trp Ile Ser  
 50 55 60

Asp His Glu Tyr Leu Tyr Lys Gln Glu Asn Asn Ile Leu Val Phe Asn  
 65 70 75 80

Ala Glu Tyr Gly Asn Ser Ser Val Phe Leu Glu Asn Ser Thr Phe Asp

85

90

95

Glu Phe Gly His Ser Ile Asn Asp Tyr Ser Ile Ser Pro Asp Gly Gln  
 100 105 110

Phe Ile Leu Leu Glu Tyr Asn Tyr Val Lys Gln Trp Arg His Ser Tyr  
 115 120 125

Thr Ala Ser Tyr Asp Ile Tyr Asp Leu Asn Lys Arg Gln Leu Ile Thr  
 130 135 140

Glu Glu Arg Ile Pro Asn Asn Thr Gln Trp Val Thr Trp Ser Pro Val  
 145 150 155 160

Gly His Lys Leu Ala Tyr Val Trp Asn Asn Asp Ile Tyr Val Lys Ile  
 165 170 175

Glu Pro Asn Leu Pro Ser Tyr Arg Ile Thr Trp Thr Gly Lys Glu Asp  
 180 185 190

Ile Ile Tyr Asn Gly Ile Thr Asp Trp Val Tyr Glu Glu Glu Val Phe  
 195 200 205

Ser Ala Tyr Ser Ala Leu Trp Trp Ser Pro Asn Gly Thr Phe Leu Ala  
 210 215 220

Tyr Ala Gln Phe Asn Asp Thr Glu Val Pro Leu Ile Glu Tyr Ser Phe  
 225 230 235 240

Tyr Ser Asp Glu Ser Leu Gln Tyr Pro Lys Thr Val Arg Val Pro Tyr  
 245 250 255

Pro Lys Ala Gly Ala Val Asn Pro Thr Val Lys Phe Phe Val Val Asn  
 260 265 270

Thr Asp Ser Leu Ser Ser Val Thr Asn Ala Thr Ser Ile Gln Ile Thr  
 275 280 285

Ala Pro Ala Ser Met Leu Ile Gly Asp His Tyr Leu Cys Asp Val Thr  
 290 295 300

Trp Ala Thr Gln Glu Arg Ile Ser Leu Gln Trp Leu Arg Arg Ile Gln  
 305 310 315 320

Asn Tyr Ser Val Met Asp Ile Cys Asp Tyr Asp Glu Ser Ser Gly Arg  
325 330 335

Trp Asn Cys Leu Val Ala Arg Gln His Ile Glu Met Ser Thr Thr Gly  
340 345 350

Trp Val Gly Arg Phe Arg Pro Ser Glu Pro His Phe Thr Leu Asp Gly  
355 360 365

Asn Ser Phe Tyr Lys Ile Ile Ser Asn Glu Glu Gly Tyr Arg His Ile  
370 375 380

Cys Tyr Phe Gln Ile Asp Lys Lys Asp Cys Thr Phe Ile Thr Lys Gly  
385 390 395 400

Thr Trp Glu Val Ile Gly Ile Glu Ala Leu Thr Ser Asp Tyr Leu Tyr  
405 410 415

Tyr Ile Ser Asn Glu Tyr Lys Gly Met Pro Gly Gly Arg Asn Leu Tyr  
420 425 430

Lys Ile Gln Leu Ile Asp Tyr Thr Lys Val Thr Cys Leu Ser Cys Glu  
435 440 445

Leu Asn Pro Glu Arg Cys Gln Tyr Tyr Ser Val Ser Phe Ser Lys Glu  
450 455 460

Ala Lys Tyr Tyr Gln Leu Arg Cys Ser Gly Pro Gly Leu Pro Leu Tyr  
465 470 475 480

Thr Leu His Ser Ser Val Asn Asp Lys Gly Leu Arg Val Leu Glu Asp  
485 490 495

Asn Ser Ala Leu Asp Lys Met Leu Gln Asn Val Gln Met Pro Ser Lys  
500 505 510

Lys Leu Asp Phe Ile Ile Leu Asn Glu Thr Lys Phe Trp Tyr Gln Met  
515 520 525

Ile Leu Pro Pro His Phe Asp Lys Ser Lys Lys Tyr Pro Leu Leu Leu  
530 535 540

Asp Val Tyr Ala Gly Pro Cys Ser Gln Lys Ala Asp Thr Val Phe Arg  
545 550 555 560

Leu Asn Trp Ala Thr Tyr Leu Ala Ser Thr Glu Asn Ile Ile Val Ala  
565 570 575

Ser Phe Asp Gly Arg Gly Ser Gly Tyr Gln Gly Asp Lys Ile Met His  
580 585 590

Ala Ile Asn Arg Arg Leu Gly Thr Phe Glu Val Glu Asp Gln Ile Glu  
595 600 605

Ala Ala Arg Gln Phe Ser Lys Met Gly Phe Val Asp Asn Lys Arg Ile  
610 615 620

Ala Ile Trp Gly Trp Ser Tyr Gly Gly Tyr Val Thr Ser Met Val Leu  
625 630 635 640

Gly Ser Gly Ser Gly Val Phe Lys Cys Gly Ile Ala Val Ala Pro Val  
645 650 655

Ser Arg Trp Glu Tyr Tyr Asp Ser Val Tyr Thr Glu Arg Tyr Met Gly  
660 665 670

Leu Pro Thr Pro Glu Asp Asn Leu Asp His Tyr Arg Asn Ser Thr Val  
675 680 685

Met Ser Arg Ala Glu Asn Phe Lys Gln Val Glu Tyr Leu Leu Ile His  
690 695 700

Gly Thr Ala Asp Asp Asn Val His Phe Gln Gln Ser Ala Gln Ile Ser  
705 710 715 720

Lys Ala Leu Val Asp Val Gly Val Asp Phe Gln Ala Met Trp Tyr Thr  
725 730 735

Asp Glu Asp His Gly Ile Ala Ser Ser Thr Ala His Gln His Ile Tyr  
740 745 750

Thr His Met Ser His Phe Ile Lys Gln Cys Phe Ser Leu Pro  
755 760 765

<210> 225  
 <211> 261  
 <212> DNA  
 <213> human organism

<400> 225  
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 agaaaccctc aggagctctg gatgggcctg ctctctctga tgggggtcct agaagcatgt 180  
 gtggaaatga ggcctctgtc agtctgtgtcc ctgagagatg acaaggagca gagccccac 240  
 cagcccacac tggatgtcta a 261

<210> 226  
 <211> 86  
 <212> PRT  
 <213> human organism

<400> 226

Met Ala Leu Ala Lys Val Arg Glu Pro Asn Ala Asn Asp Asn Ala Ile  
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Arg Val Asp Asn Arg Ser Val Ile Lys Val Arg Ala Asn Gln Cys Ser  
 20 25 30

Leu His Glu Ala Glu Ser Glu Ser Arg Asn Pro Gln Glu Leu Trp Met  
 35 40 45

Gly Leu Leu Leu Leu Met Gly Val Leu Glu Ala Cys Val Glu Met Arg  
 50 55 60

Pro Leu Ser Val Trp Ser Leu Arg Asp Asp Lys Glu Gln Ser Pro His  
 65 70 75 80

Gln Pro Thr Leu Asp Val  
 85

<210> 227  
 <211> 462  
 <212> DNA  
 <213> human organism

<400> 227  
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 ctcatacttg ctgtatgttg tggatcagca aatatagtca gccctctact tgagcaaaat 120



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agcagaacac ctgaaagcca gcaatttcct gacactgaga atgaagagta tcacaggttt 420
gtcaaagatc agatagttgt agatatgcgg cgttatttct ga 462

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<210> 228
<211> 153
<212> PRT
<213> human organism

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<400> 228

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Met Pro Asn Ala Glu Leu Glu Ala Lys Ser Leu Gly Ser Ser Lys Cys
1          5          10          15

```

```

Leu Lys Thr Ala Leu Ile Leu Ala Val Cys Cys Gly Ser Ala Asn Ile
          20          25          30

```

```

Val Ser Pro Leu Leu Glu Gln Asn Ile Asp Val Ser Ser Gln Asp Leu
          35          40          45

```

```

Asp Arg Arg Pro Glu Ser Met Leu Phe Leu Val Ile Ile Met Trp Thr
          50          55          60

```

```

Ser Phe Val Glu Asp Asn Leu Ser Met Gly Trp Gly Lys Leu Glu Asp
65          70          75          80

```

```

Phe Met Ala Ile Glu Glu Glu Met Lys Lys His Gly Ser Thr His Val
          85          90          95

```

```

Gly Phe Pro Glu Asn Leu Thr Asn Gly Ala Ala Ala Gly Asn Gly Asp
          100          105          110

```

```

Asp Gly Leu Ile Pro Pro Arg Lys Ser Arg Thr Pro Glu Ser Gln Gln
          115          120          125

```

```

Phe Pro Asp Thr Glu Asn Glu Glu Tyr His Arg Phe Val Lys Asp Gln
          130          135          140

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Ile Val Val Asp Met Arg Arg Tyr Phe  
145 150

<210> 229  
<211> 12880  
<212> DNA  
<213> human organism

<400> 229  
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ggatctagct tacaccagtt cttctgatga gagtgaagat ggaagaaaac caagacagtc 180  
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Asn Ile Ser Leu Ala Lys Asp Ser Leu Leu Gly Ile Tyr Gly Arg Arg  
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Asn Ile Pro Pro Thr His Thr Gln Phe Asp Phe Val Lys Leu Met Asp  
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Gly Lys Gln Leu Val Lys Gln Asp Ser Lys Gly Ser Asp Asp Thr Gln  
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His Ser Pro Arg Asn Leu Ile Leu Thr Ser Leu Gln Glu Thr Gly Phe  
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Ile Glu Tyr Met Asp Gln Gly Pro Trp Tyr Leu Ala Phe Tyr Asn Asp  
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Gly Lys Lys Met Glu Gln Val Phe Val Leu Thr Thr Ala Ile Glu Ile  
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Met Asp Asp Cys Ser Thr Asn Cys Asn Gly Asn Gly Glu Cys Ile Ser  
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Thr Pro Leu Pro Val Cys Gln Glu Gln Cys Ser Gly His Gly Thr Phe  
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Asp Cys Ser Thr Glu Leu Cys Thr Met Glu Cys Gly Ser His Gly Val  
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Cys Glu Glu Arg Ser Cys His Ser His Cys Thr Glu His Gly Gln Cys  
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Thr Ile Ala His Tyr Leu Asp Ala Val Arg Asp Gly Cys Pro Gly Leu  
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Cys Phe Gly Asn Gly Arg Cys Thr Leu Asp Gln Asn Gly Trp His Cys  
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Val Cys Gln Val Gly Trp Ser Gly Thr Gly Cys Asn Val Val Met Glu  
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Cys Val Asp Pro Asp Cys Cys Gln Gln Ser Asn Cys Tyr Ile Ser Pro  
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Lys Ser Leu Val Glu Thr Lys	Asp Leu Ser Lys Asn	Phe Glu Val		
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Cys Gly Asp Gly Gly Arg Ala	Ser Glu Ala Ser Leu	Asn Ser Pro		
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Arg Gly Ile Thr Val Asp Arg	His Gly Phe Ile Tyr	Phe Val Asp		
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Asp Leu Ala Val Asn Pro Met	Asp Asn Ser Leu Tyr	Val Leu Asp		
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Gln Gly Tyr Asn Pro Ala Leu Met Thr Tyr Pro Gly Asn Thr Gly  
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Leu Leu Ala Thr Lys Ser Asn Glu Asn Gly Trp Thr Thr Val Tyr  
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Glu Tyr Asp Pro Glu Gly His Leu Thr Asn Ala Thr Phe Pro Thr  
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Gly Glu Val Ser Ser Phe His Ser Asp Leu Glu Lys Leu Thr Lys  
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Val Glu Leu Asp Thr Ser Asn Arg Glu Asn Val Leu Met Ser Thr  
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Pro Val Ser Arg Tyr Asn Glu Val Asn Ile Thr Tyr Ser Pro Ser  
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Gly Leu Val Thr Phe Ile Gln Arg Gly Thr Trp Asn Glu Lys Met  
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Glu Tyr Asp Gln Ser Gly Lys Ile Ile Ser Arg Thr Trp Ala Asp  
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Gly Lys Ile Trp Ser Tyr Thr Tyr Leu Glu Lys Ser Val Met Leu  
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Asp Cys Leu Leu Ser Val Thr Met Pro Ser Met Val Arg His Ser  
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Pro Pro Asp Ser Ser Thr Ser Phe Ile Gln Asp Tyr Ser Arg Asp  
1940 1945 1950

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1955 1960 1965

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1970 1975 1980

Asp Thr Thr Gln Val Thr Leu Thr Tyr Glu Glu Ser Ser Gly Val  
1985 1990 1995

Ile Lys Thr Ile His Leu Met His Asp Gly Phe Ile Cys Thr Ile  
2000 2005 2010

Arg Tyr Arg Gln Thr Gly Pro Leu Ile Gly Arg Gln Ile Phe Arg

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Pro Leu Pro Ile Asp Leu Tyr 2060	Arg Tyr Val Asp 2065	Val Ser Gly Arg 2070
Thr Glu Gln Phe Gly Lys Phe 2075	Ser Val Ile Asn 2080	Tyr Asp Leu Asn 2085
Gln Val Ile Thr Thr Thr Val 2090	Met Lys His Thr 2095	Lys Ile Phe Ser 2100
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Val Asn Asp Lys Thr Gln Trp 2165	Arg Tyr Ser Tyr 2170	Asp Leu Asn Gly 2175
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Gln Tyr Lys Met Asp Glu Asp 2210	Gly Phe Leu Arg 2215	Gln Arg Gly Asn 2220
Asp Ile Phe Glu Tyr Asn Ser 2225	Asn Gly Leu Leu 2230	Gln Lys Ala Tyr 2235

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Asn Val Ser Thr Lys Asn Tyr Asn Gly Val Leu Ser Ile Ile Tyr Thr  
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Leu Val Glu Ile Phe Gln Asn Ile Gly Asp Thr Asn Leu Ala Asp Phe  
260 265 270

Thr Ala Gly Leu Leu Thr Ile Val Val Cys Met Ala Val Lys Glu Leu  
275 280 285

Asn Asp Arg Phe Arg His Lys Ile Pro Val Pro Ile Pro Ile Glu Val  
290 295 300

Ile Val Thr Ile Ile Ala Thr Ala Ile Ser Tyr Gly Ala Asn Leu Glu  
305 310 315 320

Lys Asn Tyr Asn Ala Gly Ile Val Lys Ser Ile Pro Arg Gly Phe Leu  
325 330 335

Pro Pro Glu Leu Pro Pro Val Ser Leu Phe Ser Glu Met Leu Ala Ala

340	345	350																			
Ser	Phe	Ser	Ile	Ala	Val	Val	Ala	Tyr	Ala	Ile	Ala	Val	Ser	Val	Gly						
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Lys	Val	Tyr	Ala	Thr	Lys	Tyr	Asp	Tyr	Thr	Ile	Asp	Gly	Asn	Gln	Glu						
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Phe	Ile	Ala	Phe	Gly	Ile	Ser	Asn	Ile	Phe	Ser	Gly	Phe	Phe	Ser	Cys						
385					390					395					400						
Phe	Val	Ala	Thr	Thr	Ala	Leu	Ser	Arg	Thr	Ala	Val	Gln	Glu	Ser	Thr						
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Gly	Gly	Lys	Thr	Gln	Val	Ala	Gly	Ile	Ile	Ser	Ala	Ala	Ile	Val	Met						
			420					425					430								
Ile	Ala	Ile	Leu	Ala	Leu	Gly	Lys	Leu	Leu	Glu	Pro	Leu	Gln	Lys	Ser						
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Val	Leu	Ala	Ala	Val	Val	Ile	Ala	Asn	Leu	Lys	Gly	Met	Phe	Met	Gln						
	450					455					460										
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Ile	Trp	Val	Phe	Thr	Cys	Ile	Val	Ser	Ile	Ile	Leu	Gly	Leu	Asp	Leu						
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Gly	Leu	Leu	Ala	Gly	Leu	Ile	Phe	Gly	Leu	Leu	Thr	Val	Val	Leu	Arg						
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Val	Gln	Phe	Pro	Ser	Trp	Asn	Gly	Leu	Gly	Ser	Ile	Pro	Ser	Thr	Asp						
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Ile	Tyr	Lys	Ser	Thr	Lys	Asn	Tyr	Lys	Asn	Ile	Glu	Glu	Pro	Gln	Gly						
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Val	Lys	Ile	Leu	Arg	Phe	Ser	Ser	Pro	Ile	Phe	Tyr	Gly	Asn	Val	Asp						
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Gly	Phe	Lys	Lys	Cys	Ile	Lys	Ser	Thr	Val	Gly	Phe	Asp	Ala	Ile	Arg						
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Val Tyr Asn Lys Arg Leu Lys Ala Leu Arg Lys Ile Gln Lys Leu Ile  
580 585 590

Lys Ser Gly Gln Leu Arg Ala Thr Lys Asn Gly Ile Ile Ser Asp Ala  
595 600 605

Val Ser Thr Asn Asn Ala Phe Glu Pro Asp Glu Asp Ile Glu Asp Leu  
610 615 620

Glu Glu Leu Asp Ile Pro Thr Lys Glu Ile Glu Ile Gln Val Asp Trp  
625 630 635 640

Asn Ser Glu Leu Pro Val Lys Val Asn Val Pro Lys Val Pro Ile His  
645 650 655

Ser Leu Val Leu Asp Cys Gly Ala Ile Ser Phe Leu Asp Val Val Gly  
660 665 670

Val Arg Ser Leu Arg Val Ile Val Lys Glu Phe Gln Arg Ile Asp Val  
675 680 685

Asn Val Tyr Phe Ala Ser Leu Gln Asp Tyr Val Ile Glu Lys Leu Glu  
690 695 700

Gln Cys Gly Phe Phe Asp Asp Asn Ile Arg Lys Asp Thr Phe Phe Leu  
705 710 715 720

Thr Val His Asp Ala Ile Leu Tyr Leu Gln Asn Gln Val Lys Ser Gln  
725 730 735

Glu Gly Gln Gly Ser Ile Leu Glu Thr Ile Thr Leu Ile Gln Asp Cys  
740 745 750

Lys Asp Thr Leu Glu Leu Ile Glu Thr Glu Leu Thr Glu Glu Glu Leu  
755 760 765

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Met Arg Thr Leu Ala Ser  
785 790

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<210> 234  
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<400> 234

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Leu Leu Leu Val Gln Leu Leu Arg Phe Leu Arg Ala Asp Gly Asp Leu  
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Thr Leu Leu Trp Ala Glu Trp Gln Gly Arg Arg Pro Glu Trp Glu Leu  
35 40 45

Thr Asp Met Val Val Trp Val Thr Gly Ala Ser Ser Gly Ile Gly Glu  
50 55 60

Glu Leu Ala Tyr Gln Leu Ser Lys Leu Gly Val Ser Leu Val Leu Ser  
65 70 75 80

Ala Arg Arg Val His Glu Leu Glu Arg Val Lys Arg Arg Cys Leu Glu  
85 90 95

Asn Gly Asn Leu Lys Glu Lys Asp Ile Leu Val Leu Pro Leu Asp Leu  
100 105 110

Thr Asp Thr Gly Ser His Glu Ala Ala Thr Lys Ala Val Leu Gln Glu  
115 120 125

Phe Gly Arg Ile Asp Ile Leu Val Asn Asn Gly Gly Met Ser Gln Arg  
130 135 140

Ser Leu Cys Met Asp Thr Ser Leu Asp Val Tyr Arg Lys Leu Ile Glu  
145 150 155 160

Leu Asn Tyr Leu Gly Thr Val Ser Leu Thr Lys Cys Val Leu Pro His  
165 170 175

Met Ile Glu Arg Lys Gln Gly Lys Ile Val Thr Val Asn Ser Ile Leu  
180 185 190

Gly Ile Ile Ser Val Pro Leu Ser Ile Gly Tyr Cys Ala Ser Lys His  
195 200 205

Ala Leu Arg Gly Phe Phe Asn Gly Leu Arg Thr Glu Leu Ala Thr Tyr  
210 215 220

Pro Gly Ile Ile Val Ser Asn Ile Cys Pro Gly Pro Val Gln Ser Asn  
 225 230 235 240

Ile Val Glu Asn Ser Leu Ala Gly Glu Val Thr Lys Thr Ile Gly Asn  
 245 250 255

Asn Gly Asp Gln Ser His Lys Met Thr Thr Ser Arg Cys Val Arg Leu  
 260 265 270

Met Leu Ile Ser Met Ala Asn Asp Leu Lys Glu Val Trp Ile Ser Glu  
 275 280 285

Gln Pro Phe Leu Leu Val Thr Tyr Leu Trp Gln Tyr Met Pro Thr Trp  
 290 295 300

Ala Trp Trp Ile Thr Asn Lys Met Gly Lys Lys Arg Ile Glu Asn Phe  
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Lys Ser Gly Val Asp Ala Asp Ser Ser Tyr Phe Lys Ile Phe Lys Thr  
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Lys His Asp

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 gatgtgggca tgtggaatga tgagaggtgc agcaagaaga agcttgccct atgctacaca 420  
 gctgctgtga ccaatacatc ctgcagtggc cacggtgaat gtgtagagac catcaataat 480  
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<400> 236
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Lys Glu Ser Gly Ala Trp Ser Tyr Asn Thr Ser Thr Glu Ala Met Thr
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20

25

30

Tyr Asp Glu Ala Ser Ala Tyr Cys Gln Gln Arg Tyr Thr His Leu Val  
 35 40 45

Ala Ile Gln Asn Lys Glu Glu Ile Glu Tyr Leu Asn Ser Ile Leu Ser  
 50 55 60

Tyr Ser Pro Ser Tyr Tyr Trp Ile Gly Ile Arg Lys Val Asn Asn Val  
 65 70 75 80

Trp Val Trp Val Gly Thr Gln Lys Pro Leu Thr Glu Glu Ala Lys Asn  
 85 90 95

Trp Ala Pro Gly Glu Pro Asn Asn Arg Gln Lys Asp Glu Asp Cys Val  
 100 105 110

Glu Ile Tyr Ile Lys Arg Glu Lys Asp Val Gly Met Trp Asn Asp Glu  
 115 120 125

Arg Cys Ser Lys Lys Lys Leu Ala Leu Cys Tyr Thr Ala Ala Cys Thr  
 130 135 140

Asn Thr Ser Cys Ser Gly His Gly Glu Cys Val Glu Thr Ile Asn Asn  
 145 150 155 160

Tyr Thr Cys Lys Cys Asp Pro Gly Phe Ser Gly Leu Lys Cys Glu Gln  
 165 170 175

Ile Val Asn Cys Thr Ala Leu Glu Ser Pro Glu His Gly Ser Leu Val  
 180 185 190

Cys Ser His Pro Leu Gly Asn Phe Ser Tyr Asn Ser Ser Cys Ser Ile  
 195 200 205

Ser Cys Asp Arg Gly Tyr Leu Pro Ser Ser Met Glu Thr Met Gln Cys  
 210 215 220

Met Ser Ser Gly Glu Trp Ser Ala Pro Ile Pro Ala Cys Asn Val Val  
 225 230 235 240

Glu Cys Asp Ala Val Thr Asn Pro Ala Asn Gly Phe Val Glu Cys Phe  
 245 250 255

Gln Asn Pro Gly Ser Phe Pro Trp Asn Thr Thr Cys Thr Phe Asp Cys  
260 265 270

Glu Glu Gly Phe Glu Leu Met Gly Ala Gln Ser Leu Gln Cys Thr Ser  
275 280 285

Ser Gly Asn Trp Asp Asn Glu Lys Pro Thr Cys Lys Ala Val Thr Cys  
290 295 300

Arg Ala Val Arg Gln Pro Gln Asn Gly Ser Val Arg Cys Ser His Ser  
305 310 315 320

Pro Ala Gly Glu Phe Thr Phe Lys Ser Ser Cys Asn Phe Thr Cys Glu  
325 330 335

Glu Gly Phe Met Leu Gln Gly Pro Ala Gln Val Glu Cys Thr Thr Gln  
340 345 350

Gly Gln Trp Thr Gln Gln Ile Pro Val Cys Glu Ala Phe Gln Cys Thr  
355 360 365

Ala Leu Ser Asn Pro Glu Arg Gly Tyr Met Asn Cys Leu Pro Ser Ala  
370 375 380

Ser Gly Ser Phe Arg Tyr Gly Ser Ser Cys Glu Phe Ser Cys Glu Gln  
385 390 395 400

Gly Phe Val Leu Lys Gly Ser Lys Arg Leu Gln Cys Gly Pro Thr Gly  
405 410 415

Glu Trp Asp Asn Glu Lys Pro Thr Cys Glu Ala Val Arg Cys Asp Ala  
420 425 430

Val His Gln Pro Pro Lys Gly Leu Val Arg Cys Ala His Ser Pro Ile  
435 440 445

Gly Glu Phe Thr Tyr Lys Ser Ser Cys Ala Phe Ser Cys Glu Glu Gly  
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Phe Glu Leu Tyr Gly Ser Thr Gln Leu Glu Cys Thr Ser Gln Gly Gln  
465 470 475 480

Trp Thr Glu Glu Val Pro Ser Cys Gln Val Val Lys Cys Ser Ser Leu  
485 490 495

Ala Val Pro Gly Lys Ile Asn Met Ser Cys Ser Gly Glu Pro Val Phe  
500 505 510

Gly Thr Val Cys Lys Phe Ala Cys Pro Glu Gly Trp Thr Leu Asn Gly  
515 520 525

Ser Ala Ala Arg Thr Cys Gly Ala Thr Gly His Trp Ser Gly Leu Leu  
530 535 540

Pro Thr Cys Glu Ala Pro Thr Glu Ser Asn Ile Pro Leu Val Ala Gly  
545 550 555 560

Leu Ser Ala Ala Gly Leu Ser Leu Leu Thr Leu Ala Pro Phe Leu Leu  
565 570 575

Trp Leu Arg Lys Cys Leu Arg Lys Ala Lys Lys Phe Val Pro Ala Ser  
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Ser Cys Gln Ser Leu Glu Ser Asp Gly Ser Tyr Gln Lys Pro Ser Tyr  
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Ile Leu  
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<400> 238

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Leu Arg Glu Thr Gln Glu Ser Leu Ser Leu Ala Gln Gln Arg Leu Gln  
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Asp Val Ile Tyr Asp Arg Asp Ser Leu Gln Arg Gln Leu Asn Ser Ala  
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Leu Pro Gln Asp Ile Glu Ser Leu Thr Gly Gly Leu Ala Gly Ser Lys  
85 90 95

Gly Ala Asp Pro Pro Glu Phe Ala Ala Leu Thr Lys Glu Leu Asn Ala  
100 105 110

Cys Arg Glu Gln Leu Leu Glu Lys Glu Glu Glu Ile Ser Glu Leu Lys  
115 120 125

Ala Glu Arg Asn Asn Thr Arg Leu Leu Leu Glu His Leu Glu Cys Leu  
130 135 140

Val Ser Arg His Glu Arg Ser Leu Arg Met Thr Val Val Lys Arg Gln  
145 150 155 160

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Leu Lys Ser Leu Phe Glu His His Lys Ala Leu Asp Glu Lys Val Arg  
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Glu Arg Leu Arg Val Ser Leu Glu Arg Val Ser Ala Leu Glu Glu Glu

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His Leu Glu Gly Met Glu Pro Gly Gln Lys Val His Glu Lys Arg Leu 245 250 255		
Ser Asn Gly Ser Ile Asp Ser Thr Asp Glu Thr Ser Gln Ile Val Glu 260 265 270		
Leu Gln Glu Leu Leu Glu Lys Gln Asn Tyr Glu Met Ala Gln Met Lys 275 280 285		
Glu Arg Leu Ala Ala Leu Ser Ser Arg Val Gly Glu Val Glu Gln Glu 290 295 300		
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Lys Tyr Gln Arg Asp Ile Arg Glu Ala Met Ala Gln Lys Glu Asp Met 325 330 335		
Glu Glu Arg Ile Thr Thr Leu Glu Lys Arg Tyr Leu Ser Ala Gln Arg 340 345 350		
Glu Ser Thr Ser Ile His Asp Met Asn Asp Lys Leu Glu Asn Glu Leu 355 360 365		
Ala Asn Lys Glu Ala Ile Leu Arg Gln Met Glu Glu Lys Asn Arg Gln 370 375 380		
Leu Gln Glu Arg Leu Glu Leu Ala Glu Gln Lys Leu Gln Gln Thr Met 385 390 395 400		
Arg Lys Ala Glu Thr Leu Pro Glu Val Glu Ala Glu Leu Ala Gln Arg 405 410 415		
Ile Ala Ala Leu Thr Lys Ala Glu Glu Arg His Gly Asn Ile Glu Glu 420 425 430		

Arg Met Arg His Leu Glu Gly Gln Leu Glu Glu Lys Asn Gln Glu Leu  
435 440 445

Gln Arg Ala Arg Gln Arg Glu Lys Met Asn Glu Glu His Asn Lys Arg  
450 455 460

Leu Ser Asp Thr Val Asp Arg Leu Leu Thr Glu Ser Asn Glu Arg Leu  
465 470 475 480

Gln Leu His Leu Lys Glu Arg Met Ala Ala Leu Glu Glu Lys Asn Val  
485 490 495

Leu Ile Gln Glu Ser Glu Thr Phe Arg Lys Asn Leu Glu Glu Ser Leu  
500 505 510

His Asp Lys Glu Arg Leu Ala Glu Glu Ile Glu Lys Leu Arg Ser Glu  
515 520 525

Leu Asp Gln Leu Lys Met Arg Thr Gly Ser Leu Ile Glu Pro Thr Ile  
530 535 540

Pro Arg Thr His Leu Asp Thr Ser Ala Glu Leu Arg Tyr Ser Val Gly  
545 550 555 560

Ser Leu Val Asp Ser Gln Ser Asp Tyr Arg Thr Thr Lys Val Ile Arg  
565 570 575

Arg Pro Arg Arg Gly Arg Met Gly Val Arg Arg Asp Glu Pro Lys Val  
580 585 590

Lys Ser Leu Gly Asp His Glu Trp Asn Arg Thr Gln Gln Ile Gly Val  
595 600 605

Leu Ser Ser His Pro Phe Glu Ser Asp Thr Glu Met Ser Asp Ile Asp  
610 615 620

Asp Asp Asp Arg Glu Thr Ile Phe Ser Ser Met Asp Leu Leu Ser Pro  
625 630 635 640

Ser Gly His Ser Asp Ala Gln Thr Leu Ala Met Met Leu Gln Glu Gln  
645 650 655



Leu Asp Ala Ile Asn Lys Glu Ile Arg Leu Ile Gln Glu Glu Lys Glu  
660 665 670

Ser Thr Glu Leu Arg Ala Glu Glu Ile Glu Asn Arg Val Ala Ser Val  
675 680 685

Ser Leu Glu Gly Leu Asn Leu Ala Arg Val His Pro Gly Thr Ser Ile  
690 695 700

Thr Ala Ser Val Thr Ala Ser Ser Leu Ala Ser Ser Ser Pro Pro Ser  
705 710 715 720

Gly His Ser Thr Pro Lys Leu Thr Pro Arg Ser Pro Ala Arg Glu Met  
725 730 735

Asp Arg Met Gly Val Met Thr Leu Pro Ser Asp Leu Arg Lys His Arg  
740 745 750

Arg Lys Ile Ala Val Val Glu Glu Asp Gly Arg Glu Asp Lys Ala Thr  
755 760 765

Ile Lys Cys Glu Thr Ser Pro Pro Pro Thr Pro Arg Ala Leu Arg Met  
770 775 780

Thr His Thr Leu Pro Ser Ser Tyr His Asn Asp Ala Arg Ser Ser Leu  
785 790 795 800

Ser Val Ser Leu Glu Pro Glu Ser Leu Gly Leu Gly Ser Ala Asn Ser  
805 810 815

Ser Gln Asp Ser Leu His Lys Ala Pro Lys Lys Lys Gly Ile Lys Ser  
820 825 830

Ser Ile Gly Arg Leu Phe Gly Lys Lys Glu Lys Ala Arg Leu Gly Gln  
835 840 845

Leu Arg Gly Phe Met Glu Thr Glu Ala Ala Ala Gln Glu Ser Leu Gly  
850 855 860

Leu Gly Lys Leu Gly Thr Gln Ala Glu Lys Asp Arg Arg Leu Lys Lys  
865 870 875 880

Lys His Glu Leu Leu Glu Glu Ala Arg Arg Lys Gly Leu Pro Phe Ala  
885 890 895

Gln Trp Asp Gly Pro Thr Val Val Ala Trp Leu Glu Leu Trp Leu Gly  
900 905 910

Met Pro Ala Trp Tyr Val Ala Ala Cys Arg Ala Asn Val Lys Ser Gly  
915 920 925

Ala Ile Met Ser Ala Leu Ser Asp Thr Glu Ile Gln Arg Glu Ile Gly  
930 935 940

Ile Ser Asn Pro Leu His Arg Leu Lys Leu Arg Leu Ala Ile Gln Glu  
945 950 955 960

Met Val Ser Leu Thr Ser Pro Ser Ala Pro Pro Thr Ser Arg Thr Pro  
965 970 975

Ser Gly Asn Val Trp Val Thr His Glu Glu Met Glu Asn Leu Ala Ala  
980 985 990

Pro Ala Lys Thr Lys Glu Ser Glu Glu Gly Ser Trp Ala Gln Cys Pro  
995 1000 1005

Val Phe Leu Gln Thr Leu Ala Tyr Gly Asp Met Asn His Glu Trp  
1010 1015 1020

Ile Gly Asn Glu Trp Leu Pro Ser Leu Gly Leu Pro Gln Tyr Arg  
1025 1030 1035

Ser Tyr Phe Met Glu Cys Leu Val Asp Ala Arg Met Leu Asp His  
1040 1045 1050

Leu Thr Lys Lys Asp Leu Arg Val His Leu Lys Met Val Asp Ser  
1055 1060 1065

Phe His Arg Thr Ser Leu Gln Tyr Gly Ile Met Cys Leu Lys Arg  
1070 1075 1080

Leu Asn Tyr Asp Arg Lys Glu Leu Glu Arg Arg Arg Glu Ala Ser  
1085 1090 1095

Gln His Glu Ile Lys Asp Val Leu Val Trp Ser Asn Asp Arg Ile

1100	1105	1110
Ile Arg Trp Ile Gln Ala 1115	Ile Gly Leu Arg Glu 1120	Tyr Ala Asn Asn 1125
Ile Leu Glu Ser Gly Val 1130	His Gly Ser Leu Ile 1135	Ala Leu Asp Glu 1140
Asn Phe Asp Tyr Ser Ser 1145	Leu Thr Leu Leu Leu 1150	Gln Ile Pro Thr 1155
Gln Asn Thr Gln Ala Arg 1160	Gln Ile Leu Glu Arg 1165	Glu Tyr Asn Asn 1170
Leu Leu Ala Leu Gly Thr 1175	Glu Arg Arg Leu Asp 1180	Glu Ser Asp Asp 1185
Lys Asn Phe Arg Arg Gly 1190	Ser Thr Trp Arg Arg 1195	Gln Phe Pro Pro 1200
Arg Glu Val His Gly Ile 1205	Ser Met Met Pro Gly 1210	Ser Ser Glu Thr 1215
Leu Pro Ala Gly Phe Arg 1220	Leu Thr Thr Thr Ser 1225	Gly Gln Ser Arg 1230
Lys Met Thr Thr Asp Val 1235	Ala Ser Ser Arg Leu 1240	Gln Arg Leu Asp 1245
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 caagatgtga tattttaaag tgcttttaaa agtacatcaa cagctcttcc accaagagaa 480  
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 35 40 45

Ile Met Glu Phe Ser Val Tyr Gln Asp Thr Trp Met Lys Tyr Glu Tyr  
 50 55 60

Glu Val Asp Lys Asp Phe Ser Ser Lys Leu Arg Ile Asn Ile Asp Ile  
 65 70 75 80

Thr Val Ala Met Lys Cys Gln Tyr Val Gly Ala Asp Val Leu Asp Leu  
85 90 95

Ala Glu Thr Met Val Ala Ser Ala Asp Gly Leu Val Tyr Glu Pro Thr  
100 105 110

Val Phe Asp Leu Ser Pro Gln Gln Lys Glu Trp Gln Arg Met Leu Gln  
115 120 125

Leu Ile Gln Ser Arg Leu Gln Glu Glu His Ser Leu Gln Asp Val Ile  
130 135 140

Phe Lys Ser Ala Phe Lys Ser Thr Ser Thr Ala Leu Pro Pro Arg Glu  
145 150 155 160

Asp Asp Ser Ser Gln Ser Pro Asn Ala Cys Arg Ile His Gly His Leu  
165 170 175

Tyr Val Asn Lys Val Ala Gly Asn Phe His Ile Thr Val Gly Lys Ala  
180 185 190

Ile Pro His Pro Arg Gly His Ala His Leu Ala Ala Leu Val Asn His  
195 200 205

Glu Ser Tyr Asn Phe Ser His Arg Ile Asp His Leu Ser Phe Gly Glu  
210 215 220

Leu Val Pro Ala Ile Ile Asn Pro Leu Asp Gly Thr Glu Lys Ile Ala  
225 230 235 240

Ile Asp His Asn Gln Met Phe Gln Tyr Phe Ile Thr Val Val Pro Thr  
245 250 255

Lys Leu His Thr Tyr Lys Ile Ser Ala Asp Thr His Gln Phe Ser Val  
260 265 270

Thr Glu Arg Glu Arg Ile Ile Asn His Ala Ala Gly Ser His Gly Val  
275 280 285

Ser Gly Ile Phe Met Lys Tyr Asp Leu Ser Ser Leu Met Val Thr Val  
290 295 300

Thr Glu Glu His Met Pro Phe Trp Gln Phe Phe Val Arg Leu Cys Gly  
 305 310 315 320

Ile Val Gly Gly Ile Phe Ser Thr Thr Gly Met Leu His Gly Ile Gly  
 325 330 335

Lys Phe Ile Val Glu Ile Ile Cys Cys Arg Phe Arg Leu Gly Ser Tyr  
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Lys Pro Val Asn Ser Val Pro Phe Glu Asp Gly His Thr Asp Asn His  
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Leu Pro Leu Leu Glu Asn Asn Thr His  
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<400> 242

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Thr Leu Leu Ala Leu Ser Cys His Glu Gln Glu Met Val Val Ser Ser  
35 40 45

Leu Val Ile Gly Ala Leu Leu Ala Ser Leu Thr Gly Gly Val Leu Ile  
50 55 60

Asp Arg Tyr Gly Arg Arg Thr Ala Ile Ile Leu Ser Ser Cys Leu Leu  
65 70 75 80

Gly Leu Gly Ser Leu Val Leu Ile Leu Ser Leu Ser Tyr Thr Val Leu  
85 90 95

Ile Val Gly Arg Ile Ala Ile Gly Val Ser Ile Ser Leu Ser Ser Ile  
100 105 110

Ala Thr Cys Val Tyr Ile Ala Glu Ile Ala Pro Gln His Arg Arg Gly  
115 120 125

Leu Leu Val Ser Leu Asn Glu Leu Met Ile Val Ile Gly Ile Leu Ser  
130 135 140

Ala Tyr Ile Ser Asn Tyr Ala Phe Ala Asn Val Phe His Gly Trp Lys  
145 150 155 160

Tyr Met Phe Gly Leu Val Ile Pro Leu Gly Val Leu Gln Ala Ile Ala  
165 170 175

Met Tyr Phe Leu Pro Pro Ser Pro Arg Phe Leu Val Met Lys Gly Gln  
180 185 190

Glu Gly Ala Ala Ser Lys Val Leu Gly Arg Leu Arg Ala Leu Ser Asp  
195 200 205

Thr Thr Glu Glu Leu Thr Val Ile Lys Ser Ser Leu Lys Asp Glu Tyr  
210 215 220

Gln Tyr Ser Phe Trp Asp Leu Phe Arg Ser Lys Asp Asn Met Arg Thr  
225 230 235 240

Arg Ile Met Ile Gly Leu Thr Leu Val Phe Phe Val Gln Ile Thr Gly  
245 250 255

Gln Pro Asn Ile Leu Phe Tyr Ala Ser Thr Val Leu Lys Ser Val Gly  
260 265 270

Phe Gln Ser Asn Glu Ala Ala Ser Leu Ala Ser Thr Gly Val Gly Val  
275 280 285

Val Lys Val Ile Ser Thr Ile Pro Ala Thr Leu Leu Val Asp His Val  
290 295 300

Gly Ser Lys Thr Phe Leu Cys Ile Gly Ser Ser Val Met Ala Ala Ser  
305 310 315 320

Leu Val Thr Met Gly Ile Val Asn Leu Asn Ile His Met Asn Phe Thr  
325 330 335

His Ile Cys Arg Ser His Asn Ser Ile Asn Gln Ser Leu Asp Glu Ser  
340 345 350

Val Ile Tyr Gly Pro Gly Asn Leu Ser Thr Asn Asn Asn Thr Leu Arg  
355 360 365

Asp His Phe Lys Gly Ile Ser Ser His Ser Arg Ser Ser Leu Met Pro  
370 375 380

Leu Arg Asn Asp Val Asp Lys Arg Gly Glu Thr Thr Ser Ala Ser Leu  
385 390 395 400

Leu Asn Ala Gly Leu Ser His Thr Glu Tyr Gln Ile Val Thr Asp Pro  
405 410 415

Gly Asp Val Pro Ala Phe Leu Lys Trp Leu Ser Leu Ala Ser Leu Leu  
420 425 430

Val Tyr Val Ala Ala Phe Ser Ile Gly Leu Gly Pro Met Pro Trp Leu  
435 440 445

Val Leu Ser Glu Ile Phe Pro Gly Gly Ile Arg Gly Arg Ala Met Ala  
450 455 460

Leu Thr Ser Ser Met Asn Trp Gly Ile Asn Leu Leu Ile Ser Leu Thr  
465 470 475 480

Phe Leu Thr Val Thr Asp Leu Ile Gly Leu Pro Trp Val Cys Phe Ile  
485 490 495

Tyr Thr Ile Met Ser Leu Asp Leu Ile Gly Leu Pro Trp Val Cys Phe  
500 505 510

Ile Tyr Thr Ile Met Ser Leu Ala Ser Leu Leu Phe Val Val Met Phe  
515 520 525

Ile Pro Glu Thr Lys Gly Cys Ser Leu Glu Gln Ile Ser Met Glu Leu  
530 535 540

Ala Lys Val Asn Tyr Val Lys Asn Asn Ile Cys Phe Met Ser His His  
545 550 555 560

Gln Glu Glu Leu Val Pro Lys Gln Pro Gln Lys Arg Lys Pro Gln Glu  
565 570 575

Gln Leu Leu Glu Cys Asn Lys Leu Cys Gly Arg Gly Gln Ser Arg Gln  
580 585 590

Leu Ser Pro Glu Thr  
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acctgatcca cagtaccgc attcacatca tgccttcctt gaaccagat ggctttgaga	780
aggcagcgtc tcagcctggg gaactcaagg actggtttgt gggtcgaagc aatgcccagg	840
gaatagatct gaaccggaac tttccagacc tggataggat agtgtacgtg aatgagaaag	900
aaggtgggtc aaataatcat ctgttgaaaa atatgaagaa aattgtggat caaaacacaa	960
agcttgctcc tgagaccaag gctgtcattc attggattat ggatattcct tttgtgcttt	1020
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gtagtgtca cgaatacagc tcctccccag atgacgccat tttccaaagc ttggcccggg	1140
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atgatgacag cagctttgta gatggaacca ccaacgggtg tgcttggtac agcgtacctg	1260
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cagttaatac ttaacattga tttatttttt aatcatttaa atattaatca actttcctta	1860
aaataaatag cctcttaggt aaaaatataa gaacttgata tatttcattc tcttatatag	1920

tattcatttt cctacctata ttacacaaaa aagtatagaa aagatttaag taattttgcc 1980  
atcctaggct taaatgcaat attcctggta ttatttaciaa tgcagaattt tttgagtaat 2040  
tctagctttc aaaaattagt gaagttcttt tactgttaatt ggtgacaatg tcacataatg 2100  
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aataaaaaatt gacttcttgc ttgtacatat aggagcaata ctattatatt atgtagtccg 2340  
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ctgaatgaat aaagggttaa aaaaaatccc cagtgaaaaa aaa 2443

<210> 245  
<211> 476  
<212> PRT  
<213> human organism

<400> 245

Met Ala Gly Arg Gly Gly Ser Ala Leu Leu Ala Leu Cys Gly Ala Leu  
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Ala Ala Cys Gly Trp Leu Leu Gly Ala Glu Ala Gln Glu Pro Gly Ala  
20 25 30

Pro Ala Ala Gly Met Arg Arg Arg Arg Arg Leu Gln Gln Glu Asp Gly  
35 40 45

Ile Ser Phe Glu Tyr His Arg Tyr Pro Glu Leu Arg Glu Ala Leu Val  
50 55 60

Ser Val Trp Leu Gln Cys Thr Ala Ile Ser Arg Ile Tyr Thr Val Gly  
65 70 75 80

Arg Ser Phe Glu Gly Arg Glu Leu Leu Val Ile Glu Leu Ser Asp Asn  
85 90 95

Pro Gly Val His Glu Pro Gly Glu Pro Glu Phe Lys Tyr Ile Gly Asn  
100 105 110

Met His Gly Asn Glu Ala Val Gly Arg Glu Leu Leu Ile Phe Leu Ala  
115 120 125

Gln Tyr Leu Cys Asn Glu Tyr Gln Lys Gly Asn Glu Thr Ile Val Asn  
130 135 140

Leu Ile His Ser Thr Arg Ile His Ile Met Pro Ser Leu Asn Pro Asp  
145 150 155 160

Gly Phe Glu Lys Ala Ala Ser Gln Pro Gly Glu Leu Lys Asp Trp Phe  
165 170 175

Val Gly Arg Ser Asn Ala Gln Gly Ile Asp Leu Asn Arg Asn Phe Pro  
180 185 190

Asp Leu Asp Arg Ile Val Tyr Val Asn Glu Lys Glu Gly Gly Pro Asn  
195 200 205

Asn His Leu Leu Lys Asn Met Lys Lys Ile Val Asp Gln Asn Thr Lys  
210 215 220

Leu Ala Pro Glu Thr Lys Ala Val Ile His Trp Ile Met Asp Ile Pro  
225 230 235 240

Phe Val Leu Ser Ala Asn Leu His Gly Gly Asp Leu Val Ala Asn Tyr  
245 250 255

Pro Tyr Asp Glu Thr Arg Ser Gly Ser Ala His Glu Tyr Ser Ser Ser  
260 265 270

Pro Asp Asp Ala Ile Phe Gln Ser Leu Ala Arg Ala Tyr Ser Ser Phe  
275 280 285

Asn Pro Ala Met Ser Asp Pro Asn Arg Pro Pro Cys Arg Lys Asn Asp  
290 295 300

Asp Asp Ser Ser Phe Val Asp Gly Thr Thr Asn Gly Gly Ala Trp Tyr  
305 310 315 320

Ser Val Pro Gly Gly Met Gln Asp Phe Asn Tyr Leu Ser Ser Asn Cys  
325 330 335

Phe Glu Ile Thr Val Glu Leu Ser Cys Glu Lys Phe Pro Pro Glu Glu  
340 345 350

Thr Leu Lys Thr Tyr Trp Glu Asp Asn Lys Asn Ser Leu Ile Ser Tyr  
 355 360 365

Leu Glu Gln Ile His Arg Gly Val Lys Gly Phe Val Arg Asp Leu Gln  
 370 375 380

Gly Asn Pro Ile Ala Asn Ala Thr Ile Ser Val Glu Gly Ile Asp His  
 385 390 395 400

Asp Val Thr Ser Ala Lys Asp Gly Asp Tyr Trp Arg Leu Leu Ile Pro  
 405 410 415

Gly Asn Tyr Lys Leu Thr Ala Ser Ala Pro Gly Tyr Leu Ala Ile Thr  
 420 425 430

Lys Lys Val Ala Val Pro Tyr Ser Pro Ala Ala Gly Val Asp Phe Glu  
 435 440 445

Leu Glu Ser Phe Ser Glu Arg Lys Glu Glu Glu Lys Glu Glu Leu Met  
 450 455 460

Glu Trp Trp Lys Met Met Ser Glu Thr Leu Asn Phe  
 465 470 475

<210> 246  
 <211> 1926  
 <212> DNA  
 <213> human organism

<400> 246  
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 gacccgatc tcaacaatcc cttcaaggat ccatcagtta cacaagtgc aagaaatggt 180  
 ccaccaggac ttgatgaata taatccattc tcggattcta gaacacctcc accaggcggt 240  
 gtgaagatgc ctaatgtacc caatacacia ccagcaataa tgaaaccaac agagggaacat 300  
 ccagcttata cacagattgc aaaggaacat gcattggccc aagctgaact tcttaagcgc 360  
 caagaagaac tagaaagaaa agccgcagaa ttagatcgtc gggaacgaga aatgcaaaac 420  
 ctcaagtcaac atggtagaaa aaatatttgg ccacctcttc ctagcaattt tctgtcgga 480  
 ccttggtttct atcaggaatt ttctgtagac attcctgtag aattccaaaa gacagtaaag 540



cttatgtact acttgtggat gttccatgca gtaacactgt ttctaaatat cttcggatgc	600
ttggcttggg tttgtgttga ttctgcaaga gcggttgatt ttggattgag tatcctgtgg	660
ttcttgcttt ttactccttg ttcatttgtc tgttggtaca gaccacttta tggagctttc	720
aggagtgaca gttcatttag attccttga ttcttcttcg tctatatattg tcagtttgct	780
gtacatgtac tccaagctgc aggatttcat aactggggca attgtggttg gatttcatcc	840
cttactgggc tcaacaaaaa tattcctgtt ggaatcatga tgataatcat agcagcactt	900
ttcacagcat cagcagtcac ctactagtt atgttcaaaa aagtacatgg actatatcgc	960
acaacagggtg ctagttttga gaaggcccaa caggagtgtt caacagggtg gatgtccaac	1020
aaaactgtcc agaccgcagc tgcaaagca gcttcaactg cagcatctag tgcagctcag	1080
aatgctttca agggtaacca gatttaagaa tcttcaaca atacactgtt accttttgac	1140
tgtacctttt tctccagtta ctgtattcta caaatatttt tatgttcaaa acacacagta	1200
cagacagcat ggatatttcc tgttcacttg tgcattgggt aaaaccagga aaacttcctt	1260
gtcttattac tttacctaat agtttcttaa tatttcagt ccccttgag aaaaaatatt	1320
acatgctaaa taaatattct ccatattttt gggggatgac attcagtga ttatttcagt	1380
ggtgaccac tgaaaattaa taatggtact tatgattaaa aacgcattta atactaactg	1440
cagtagttct ttcaagaatc tttagagata aggattgcac attggaaaag taaaccatgt	1500
ttcattcctt tttccctatt tatattgaaa gaaataggcc agcagagact tagggatttt	1560
aaattggctt gctttttagc tgtttcagtc accagtgaag agcctatgtg cttttgtag	1620
tagataatgt aaaatttgc atctttttct tttctttttt ttagaatagc tgatattttg	1680
ataacaatct ctaatttgc tgggcaccac atttcttata ttaaaagaat tagtgttttg	1740
gcttctgtac tgcttatggt tgtaggattc aggggttaat ggaatcacag aaatgatatt	1800
ctgcaagaat ttcttttaaa taaaaagttt gggggtgcaa tataagaagt ttatataata	1860
tgcagtacat tatccaaaag agaaggtagt taatgcagta gaaagtagtg gtaataattc	1920
cttttt	1926

<210> 247

<211> 338

<212> PRT

<213> human organism

<400> 247

Met Ser Asp Phe Asp Ser Asn Pro Phe Ala Asp Pro Asp Leu Asn Asn

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Pro Phe Lys Asp Pro Ser Val Thr Gln Val Thr Arg Asn Val Pro Pro	20	25	30
Gly Leu Asp Glu Tyr Asn Pro Phe Ser Asp Ser Arg Thr Pro Pro Pro	35	40	45
Gly Gly Val Lys Met Pro Asn Val Pro Asn Thr Gln Pro Ala Ile Met	50	55	60
Lys Pro Thr Glu Glu His Pro Ala Tyr Thr Gln Ile Ala Lys Glu His	65	70	75
Ala Leu Ala Gln Ala Glu Leu Leu Lys Arg Gln Glu Glu Leu Glu Arg	85	90	95
Lys Ala Ala Glu Leu Asp Arg Arg Glu Arg Glu Met Gln Asn Leu Ser	100	105	110
Gln His Gly Arg Lys Asn Ile Trp Pro Pro Leu Pro Ser Asn Phe Pro	115	120	125
Val Gly Pro Cys Phe Tyr Gln Glu Phe Ser Val Asp Ile Pro Val Glu	130	135	140
Phe Gln Lys Thr Val Lys Leu Met Tyr Tyr Leu Trp Met Phe His Ala	145	150	155
Val Thr Leu Phe Leu Asn Ile Phe Gly Cys Leu Ala Trp Phe Cys Val	165	170	175
Asp Ser Ala Arg Ala Val Asp Phe Gly Leu Ser Ile Leu Trp Phe Leu	180	185	190
Leu Phe Thr Pro Cys Ser Phe Val Cys Trp Tyr Arg Pro Leu Tyr Gly	195	200	205
Ala Phe Arg Ser Asp Ser Ser Phe Arg Phe Phe Val Phe Phe Phe Val	210	215	220
Tyr Ile Cys Gln Phe Ala Val His Val Leu Gln Ala Ala Gly Phe His	225	230	235
			240

Asn Trp Gly Asn Cys Gly Trp Ile Ser Ser Leu Thr Gly Leu Asn Gln  
 245 250 255

Asn Ile Pro Val Gly Ile Met Met Ile Ile Ile Ala Ala Leu Phe Thr  
 260 265 270

Ala Ser Ala Val Ile Ser Leu Val Met Phe Lys Lys Val His Gly Leu  
 275 280 285

Tyr Arg Thr Thr Gly Ala Ser Phe Glu Lys Ala Gln Gln Glu Phe Ala  
 290 295 300

Thr Gly Val Met Ser Asn Lys Thr Val Gln Thr Ala Ala Ala Asn Ala  
 305 310 315 320

Ala Ser Thr Ala Ala Ser Ser Ala Ala Gln Asn Ala Phe Lys Gly Asn  
 325 330 335

Gln Ile

<210> 248  
 <211> 615  
 <212> DNA  
 <213> human organism

<400> 248  
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 agtgcactac aatttcctaa aaagtcttct caccctcaca ggactgctct acatctggcc 180  
 tctgccaatg gaaattcaga agtagtaaaa ctctgctgg acagacgatg tcaacttaat 240  
 atccttgaca acaaaaagag gacagctctg acaaaggccg tacaatgcca ggaagatgaa 300  
 tgtgcgttaa tgttgctgga acatggcact gatccgaata ttccagatga gtatggaaat 360  
 accgctctac actatgctat ctacaatgaa gataaattaa tggccaaagc actgctctta 420  
 tacgggtgctg atatcgaatc aaaaaacaag catggcctca caccactggt acttggtgta 480  
 catgagcaaa aacagcaagt ggtgaaattt ttaatcaaga aaaaagcaaa tttaaattgca 540  
 ctggatagat atggaagggtg tgtgaccttg ggaacgttat ttaccaccaa atatgttgtc 600  
 atatatgaaa agtag 615

<210> 249  
<211> 204  
<212> PRT  
<213> human organism

<400> 249

Met Arg Asp Asn Lys Ser Cys Ala Phe Phe Met Gly Lys Leu Asn Val  
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Cys Phe Glu Gly Thr Val Ile Ala Gly Tyr Ser Val Phe Ala Thr Thr  
20 25 30

Cys Ile Ile His Leu Ala Val Ala Ser Ala Leu Gln Phe Pro Lys Lys  
35 40 45

Ser Ser His Pro His Arg Thr Ala Leu His Leu Ala Ser Ala Asn Gly  
50 55 60

Asn Ser Glu Val Val Lys Leu Leu Leu Asp Arg Arg Cys Gln Leu Asn  
65 70 75 80

Ile Leu Asp Asn Lys Lys Arg Thr Ala Leu Thr Lys Ala Val Gln Cys  
85 90 95

Gln Glu Asp Glu Cys Ala Leu Met Leu Leu Glu His Gly Thr Asp Pro  
100 105 110

Asn Ile Pro Asp Glu Tyr Gly Asn Thr Ala Leu His Tyr Ala Ile Tyr  
115 120 125

Asn Glu Asp Lys Leu Met Ala Lys Ala Leu Leu Leu Tyr Gly Ala Asp  
130 135 140

Ile Glu Ser Lys Asn Lys His Gly Leu Thr Pro Leu Leu Leu Gly Val  
145 150 155 160

His Glu Gln Lys Gln Gln Val Val Lys Phe Leu Ile Lys Lys Lys Ala  
165 170 175

Asn Leu Asn Ala Leu Asp Arg Tyr Gly Arg Cys Val Thr Leu Gly Thr  
180 185 190

Leu Phe Thr Thr Lys Tyr Val Val Ile Tyr Glu Lys  
 195 200

<210> 250  
 <211> 3342  
 <212> DNA  
 <213> human organism

<400> 250  
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 cccacattg actatttgat tgacattcag tttgcaacag gaaagggttac tcagccggga 120  
 gaggacactt cctaccatca atgcgctcag cttgaagcca gagacgaagg caccgacagt 180  
 ttattattaa acaatggcag cagcgccacg ctgaagacac gaacgcgctg ttatggaacc 240  
 ccagagggtc tccccatcg tagcctgctc cagccgactc cgcccatg taaaacgaag 300  
 atcaggagca gatttgaaga attacaaagt gaattggtgc cagtcagcat gtcagagaca 360  
 gaccacatag cctctacttc ctctgataaa aatgttggga aaacacctga attaaaggaa 420  
 gactcatgca acttgttttc tggcaatgaa agcagcaaata tagaaaatga gtccaaacta 480  
 ttgtcattaa aacttgataa aactttatgt caacctaata agcataataa tcgaattgaa 540  
 gccagggaaa attatatcc agatcatggt ggagggtgagg attcttgtgc caaacagac 600  
 acaggctcag aaaattctga acaaatagct aattttccta gtggaaattt tgctaaacat 660  
 atttcaaaaa caaatgaaac agaacagaaa gtaacacaaa tattggtgga attaagggtca 720  
 tctacatttc cagaatcagc taatgaaaag acttattcag aaagccccta tgatacagac 780  
 tgcaccaaga aatttatttc aaaaataaag agcgtttcag catcagagga tttgttggaa 840  
 gaaatagaat ctgagctctt atctacggag tttgcagaac atcgagtacc aaatggaatg 900  
 aataagggag aacatgcatt agttctgttt gaaaagtgtg tgcaagataa atatttgcag 960  
 caggaacata tcataaaaaa gttaattaaa gaaaataaga agcatcagga gctcttcgta 1020  
 gacatttggt cagaaaaaga caatttaaga gaagaactaa agaaaagaac agaaactgag 1080  
 aagcagcata tgaacacaat taaacagtta gaatcaagaa tagaagaact taataaagaa 1140  
 gttaaagctt ccagagatca actaatagct caagacgtta cagctaaaaa tgcagttcag 1200  
 cagttacaca aagagatggc ccaacggatg gaacaggcca acaagaaatg tgaagaggca 1260  
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 aaaaacacta acaaaattaa gcagctttct caggagaaag gacggttgca ccagctgtat 1440

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gaagaagcag atcagatacg aaaaaactgt caggatatga taaaaacata tcaggagtca	1680
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gaagatctga agagaacatt taaggagggg atggatgagt taagaacact gagaacaaag	1860
gtgaaatgtc tagaagatga acgattaaga acagaagatg aattatcaaa atataaggaa	1920
attattaatc gccaaaaagc tgaaattcag aatttattgg acaaggtgaa aactgcagat	1980
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cacatcaaac aactggtgga agaaattagg aaaaaaaca aaataattca aagttatatt	2760
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ctaaaaata ttactttgaa ggaaaatcta caaacacttg gaacagaaat agaacgtctt	3000
attaaacacc agcatgaact agaacagagg acaaagaaaa cctaaaaca gcctcttgct	3060
cagtaaagag acaaaagcca cacaggagta ggtgccactg acctctattg ttggagactt	3120

tggtccactt tttgtttcag ccagtaaaaa tattgttttg cttcatctgt acacaaaaaa 3180  
 ataccctttt acaatatgaa tgcattgctg tatatactgt aagactgaaa gctttgatga 3240  
 aatttgtttt tgtatgggtgc aatatgacag cctgtcattg aatctaaaca acttaatttg 3300  
 cttgtattca taagaagtgt tgaacattac aagggtttt at 3342

<210> 251  
 <211> 1014  
 <212> PRT  
 <213> human organism

<400> 251

Met Val Ile Ile Tyr Leu Ser Phe Cys Asn Tyr Tyr Met Glu Phe Tyr  
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Arg Glu Glu Leu Pro His Ile Asp Tyr Leu Ile Asp Ile Gln Phe Ala  
 20 25 30

Thr Gly Lys Val Thr Gln Pro Gly Glu Asp Thr Ser Tyr His Gln Cys  
 35 40 45

Ala Gln Leu Glu Ala Arg Asp Glu Gly Thr Asp Ser Leu Leu Leu Asn  
 50 55 60

Asn Gly Ser Ser Ala Thr Leu Lys Thr Arg Thr Arg Cys Tyr Gly Thr  
 65 70 75 80

Pro Arg Gly Leu Pro His Arg Ser Leu Leu Gln Pro Thr Pro Pro Thr  
 85 90 95

Cys Lys Thr Lys Ile Arg Ser Arg Phe Glu Glu Leu Gln Ser Glu Leu  
 100 105 110

Val Pro Val Ser Met Ser Glu Thr Asp His Ile Ala Ser Thr Ser Ser  
 115 120 125

Asp Lys Asn Val Gly Lys Thr Pro Glu Leu Lys Glu Asp Ser Cys Asn  
 130 135 140

Leu Phe Ser Gly Asn Glu Ser Ser Lys Leu Glu Asn Glu Ser Lys Leu  
 145 150 155 160

Leu Ser Leu Asn Thr Asp Lys Thr Leu Cys Gln Pro Asn Glu His Asn

165

170

175

Asn Arg Ile Glu Ala Gln Glu Asn Tyr Ile Pro Asp His Gly Gly Gly  
 180 185 190

Glu Asp Ser Cys Ala Lys Thr Asp Thr Gly Ser Glu Asn Ser Glu Gln  
 195 200 205

Ile Ala Asn Phe Pro Ser Gly Asn Phe Ala Lys His Ile Ser Lys Thr  
 210 215 220

Asn Glu Thr Glu Gln Lys Val Thr Gln Ile Leu Val Glu Leu Arg Ser  
 225 230 235 240

Ser Thr Phe Pro Glu Ser Ala Asn Glu Lys Thr Tyr Ser Glu Ser Pro  
 245 250 255

Tyr Asp Thr Asp Cys Thr Lys Lys Phe Ile Ser Lys Ile Lys Ser Val  
 260 265 270

Ser Ala Ser Glu Asp Leu Leu Glu Glu Ile Glu Ser Glu Leu Leu Ser  
 275 280 285

Thr Glu Phe Ala Glu His Arg Val Pro Asn Gly Met Asn Lys Gly Glu  
 290 295 300

His Ala Leu Val Leu Phe Glu Lys Cys Val Gln Asp Lys Tyr Leu Gln  
 305 310 315 320

Gln Glu His Ile Ile Lys Lys Leu Ile Lys Glu Asn Lys Lys His Gln  
 325 330 335

Glu Leu Phe Val Asp Ile Cys Ser Glu Lys Asp Asn Leu Arg Glu Glu  
 340 345 350

Leu Lys Lys Arg Thr Glu Thr Glu Lys Gln His Met Asn Thr Ile Lys  
 355 360 365

Gln Leu Glu Ser Arg Ile Glu Glu Leu Asn Lys Glu Val Lys Ala Ser  
 370 375 380

Arg Asp Gln Leu Ile Ala Gln Asp Val Thr Ala Lys Asn Ala Val Gln  
 385 390 395 400



Gln Leu His Lys Glu Met Ala Gln Arg Met Glu Gln Ala Asn Lys Lys  
405 410 415

Cys Glu Glu Ala Arg Gln Glu Lys Glu Ala Met Val Met Lys Tyr Val  
420 425 430

Arg Gly Glu Lys Glu Ser Leu Asp Leu Arg Lys Glu Lys Glu Thr Leu  
435 440 445

Glu Lys Lys Leu Arg Asp Ala Asn Lys Glu Leu Glu Lys Asn Thr Asn  
450 455 460

Lys Ile Lys Gln Leu Ser Gln Glu Lys Gly Arg Leu His Gln Leu Tyr  
465 470 475 480

Glu Thr Lys Glu Gly Glu Thr Thr Arg Leu Ile Arg Glu Ile Asp Lys  
485 490 495

Leu Lys Glu Asp Ile Asn Ser His Val Ile Lys Val Lys Trp Ala Gln  
500 505 510

Asn Lys Leu Lys Ala Glu Met Asp Ser His Lys Glu Thr Lys Asp Lys  
515 520 525

Leu Lys Glu Thr Thr Thr Lys Leu Thr Gln Ala Lys Glu Glu Ala Asp  
530 535 540

Gln Ile Arg Lys Asn Cys Gln Asp Met Ile Lys Thr Tyr Gln Glu Ser  
545 550 555 560

Glu Glu Ile Lys Ser Asn Glu Leu Asp Ala Lys Leu Arg Val Thr Lys  
565 570 575

Gly Glu Leu Glu Lys Gln Met Gln Glu Lys Ser Asp Gln Leu Glu Met  
580 585 590

His His Ala Lys Ile Lys Glu Leu Glu Asp Leu Lys Arg Thr Phe Lys  
595 600 605

Glu Gly Met Asp Glu Leu Arg Thr Leu Arg Thr Lys Val Lys Cys Leu  
610 615 620

Glu Asp Glu Arg Leu Arg Thr Glu Asp Glu Leu Ser Lys Tyr Lys Glu  
625 630 635 640

Ile Ile Asn Arg Gln Lys Ala Glu Ile Gln Asn Leu Leu Asp Lys Val  
645 650 655

Lys Thr Ala Asp Gln Leu Gln Glu Gln Leu Gln Arg Gly Lys Gln Glu  
660 665 670

Ile Glu Asn Leu Lys Glu Glu Val Glu Ser Leu Asn Ser Leu Ile Asn  
675 680 685

Asp Leu Gln Lys Asp Ile Glu Gly Ser Arg Lys Arg Glu Ser Glu Leu  
690 695 700

Leu Leu Phe Thr Glu Arg Leu Thr Ser Lys Asn Ala Gln Leu Gln Ser  
705 710 715 720

Glu Ser Asn Ser Leu Gln Ser Gln Phe Asp Lys Val Ser Cys Ser Glu  
725 730 735

Ser Gln Leu Gln Ser Gln Cys Glu Gln Met Lys Gln Thr Asn Ile Asn  
740 745 750

Leu Glu Ser Arg Leu Leu Lys Glu Glu Glu Leu Arg Lys Glu Glu Val  
755 760 765

Gln Thr Leu Gln Ala Glu Leu Ala Cys Arg Gln Thr Glu Val Lys Ala  
770 775 780

Leu Ser Thr Gln Val Glu Glu Leu Lys Asp Glu Leu Val Thr Gln Arg  
785 790 795 800

Arg Lys His Ala Ser Ser Ile Lys Asp Leu Thr Lys Gln Leu Gln Gln  
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Ala Arg Arg Lys Leu Asp Gln Val Glu Ser Gly Ser Tyr Asp Lys Glu  
820 825 830

Val Ser Ser Met Gly Ser Arg Ser Ser Ser Ser Gly Ser Leu Asn Ala  
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Arg Ser Ser Ala Glu Asp Arg Ser Pro Glu Asn Thr Gly Ser Ser Val  
 850 855 860

Ala Val Asp Asn Phe Pro Gln Val Asp Lys Ala Met Leu Ile Glu Arg  
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Ile Val Arg Leu Gln Lys Ala His Ala Arg Lys Asn Glu Lys Ile Glu  
 885 890 895

Phe Met Glu Asp His Ile Lys Gln Leu Val Glu Glu Ile Arg Lys Lys  
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Thr Lys Ile Ile Gln Ser Tyr Ile Leu Arg Glu Glu Ser Gly Thr Leu  
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Ser Ser Glu Ala Ser Asp Phe Asn Lys Val His Leu Ser Arg Arg Gly  
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Gly Ile Met Ala Ser Leu Tyr Thr Ser His Pro Ala Asp Asn Gly Leu  
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Thr Leu Glu Leu Ser Leu Glu Ile Asn Arg Lys Leu Gln Ala Val Leu  
 965 970 975

Glu Asp Thr Leu Leu Lys Asn Ile Thr Leu Lys Glu Asn Leu Gln Thr  
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Lys Gly Ala Met Asp Glu Leu Glu Arg Ala Leu Ser Cys Pro Gly Gln  
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Pro Ser Lys Cys Val Thr Ile Pro Arg Ser Leu Asp Gly Arg Leu Gln  
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Val Ser His Arg Lys Gly Leu Pro His Val Ile Tyr Cys Arg Val Trp  
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Arg Trp Pro Asp Leu Gln Ser His His Glu Leu Lys Pro Leu Glu Cys  
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Cys Glu Phe Pro Phe Gly Ser Lys Gln Lys Glu Val Cys Ile Asn Pro  
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Tyr His Tyr Arg Arg Val Glu Thr Pro Val Leu Pro Pro Val Leu Val  
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Arg Ser Ala Ser Leu His Ser Glu Pro Leu Met Pro His Asn Ala Thr  
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Tyr Pro Asp Ser Phe Gln Gln Pro Pro Cys Ser Ala Leu Pro Pro Ser  
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Pro Ser His Ala Phe Ser Gln Ser Pro Cys Thr Ala Ser Tyr Pro His  
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Ser Pro Gly Ser Pro Ser Glu Pro Glu Ser Pro Tyr Gln His Ser Val  
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Asp Thr Pro Pro Leu Pro Tyr His Ala Thr Glu Ala Ser Glu Thr Gln  
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Ser Gly Gln Pro Val Asp Ala Thr Ala Asp Arg His Val Val Leu Ser  
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Ile Pro Asn Gly Asp Phe Arg Pro Val Cys Tyr Glu Glu Pro Gln His  
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Trp Cys Ser Val Ala Tyr Tyr Glu Leu Asn Asn Arg Val Gly Glu Thr  
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His Pro Ala Thr Val Cys Lys Ile Pro Ser Gly Cys Ser Leu Lys Val  
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Gly Phe Glu Val Val Tyr Glu Leu Thr Lys Met Cys Thr Ile Arg Met  
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Pro Ser Ser Ser Asp Val Gly Val Ser Val Ile Val Lys Asn Val Arg  
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Asn Ile Asp Ser Ser Glu Gly Gly Glu Lys Asp Gly His Asn Pro Thr  
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Gly Asn Gly Leu His Asn Gly Phe Leu Thr Ala Ser Ser Leu Asp Ser  
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Tyr Ser Lys Asp Gly Ala Lys Ser Leu Lys Gly Asp Val Pro Ala Ser  
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Glu Val Thr Leu Lys Asp Ser Thr Phe Ser Gln Phe Ser Pro Ile Ser  
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Ser Ala Glu Glu Phe Asp Asp Asp Glu Lys Ile Glu Val Asp Asp Pro  
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Pro Asp Lys Glu Asp Met Arg Ser Ser Phe Arg Ser Asn Val Leu Thr  
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Gly Ser Ala Pro Gln Gln Asp Tyr Asp Lys Leu Lys Ala Leu Gly Gly  
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Glu Asn Ser Ser Lys Thr Gly Leu Ser Thr Ser Gly Asn Val Glu Lys  
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Val Tyr Glu Pro Phe Lys Val Arg Lys Ala Glu Asp Lys Leu Lys Glu  
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Ser Ser Asp Lys Val Leu Glu Asn Arg Val Leu Asp Gly Lys Leu Ser  
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Ser Glu Lys Asn Asp Thr Ser Leu Pro Ser Val Ala Pro Ser Lys Thr  
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Lys Ser Ser Ser Lys Leu Ser Ser Cys Ile Ala Ala Ile Ala Ala Leu  
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Ser Arg Glu Ser Ser Pro Leu Pro Lys Glu Val Asn Asp Ser Pro Arg  
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Ala Ala Asp Lys Ser Pro Glu Ser Gln Asn Leu Ile Asp Gly Thr Lys  
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Lys Pro Ser Leu Lys Gln Pro Asp Ser Pro Arg Ser Ile Ser Ser Glu  
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Asn Ser Ser Lys Gly Ser Pro Ser Ser Pro Ala Gly Ser Thr Pro Ala  
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Ile Pro Lys Val Arg Ile Lys Thr Ile Lys Thr Ser Ser Gly Glu Ile  
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Lys Arg Thr Val Thr Arg Val Leu Pro Glu Val Asp Leu Asp Ser Gly  
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Lys Lys Pro Ser Glu Gln Thr Ala Ser Val Met Ala Ser Val Thr Ser  
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Leu Leu Ser Ser Pro Ala Ser Ala Ala Val Leu Ser Ser Pro Pro Arg  
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Leu Thr Pro Lys Gln Val Thr Ile Lys Pro Val Ala Thr Ala Phe Leu  
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Pro Val Ser Ala Val Lys Thr Ala Gly Ser Gln Val Ile Asn Leu Lys  
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Val Gln Ser Ala Ser Ser Ala Ile Ile Lys Ala Ala Asn Ala Ile Gln  
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Gln Gln Thr Val Val Val Pro Ala Ser Ser Leu Ala Asn Ala Lys Leu  
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Gln Ile Lys Gln Ala Ile Ile Asn Ala Ala Ala Ser Gln Pro Pro Lys  
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Lys Val Ser Arg Val Gln Val Val Ser Ser Leu Gln Ser Ser Val Val  
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Arg Gly Tyr Lys Cys Leu Glu Cys Gly Asp Ser Phe Ala Leu Glu Lys  
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Ser Leu Thr Gln His Tyr Asp Arg Arg Ser Val Arg Ile Glu Val Thr  
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Cys Asn His Cys Thr Lys Asn Leu Val Phe Tyr Asn Lys Cys Ser Leu  
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Leu Asp Glu Asp Pro Ser Lys Leu Cys Arg His Ser Leu Lys Cys Leu  
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Glu Cys Asn Glu Val Phe Gln Asp Glu Thr Ser Leu Ala Thr His Phe

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760

765

Gln Gln Ala Ala Asp Thr Ser Gly Gln Lys Thr Cys Thr Ile Cys Gln  
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Met Leu Leu Pro Asn Gln Cys Ser Tyr Ala Ser His Gln Arg Ile His  
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Gln His Lys Ser Pro Tyr Thr Cys Pro Glu Cys Gly Ala Ile Cys Arg  
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Ser Val His Phe Gln Thr His Val Thr Lys Asn Cys Leu His Tyr Thr  
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Arg Arg Val Gly Phe Arg Cys Val His Cys Asn Val Val Tyr Ser Asp  
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Val Ala Ala Leu Lys Ser His Ile Gln Gly Ser His Cys Glu Val Phe  
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Tyr Lys Cys Pro Ile Cys Pro Met Ala Phe Lys Ser Ala Pro Ser Thr  
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His Ser His Ala Tyr Thr Gln His Pro Gly Ile Lys Ile Gly Glu Pro  
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Lys Ile Ile Tyr Lys Cys Ser Met Cys Asp Thr Val Phe Thr Leu Gln  
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Thr Leu Leu Tyr Arg His Phe Asp Gln His Ile Glu Asn Gln Lys Val  
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Ser Val Phe Lys Cys Pro Asp Cys Ser Leu Leu Tyr Ala Gln Lys Gln  
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Leu Met Met Asp His Ile Lys Ser Met His Gly Thr Leu Lys Ser Ile  
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Glu Gly Pro Pro Asn Leu Gly Ile Asn Leu Pro Leu Ser Ile Lys Pro  
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Val Arg Lys Glu His Gly Lys Gln Met Lys Lys His Pro Cys Arg  
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Pro Gln His Lys Ser Asp Gly Ser Ser Tyr Gln Cys Arg Glu Cys  
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Cys Ala Lys Thr Phe Glu Thr Glu Ala Ala Leu Asn Thr His Met  
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Ala Glu Lys  
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 35 40 45

Ser Gly Ser His Arg Ser Leu Gly Val His Leu Ser Phe Ile Arg Ser  
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Thr Glu Leu Asp Ser Asn Trp Ser Trp Phe Gln Leu Arg Cys Met Gln  
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Val Gly Gly Asn Ala Ser Ala Ser Ser Phe Phe His Gln His Gly Cys  
 85 90 95

Ser Thr Asn Asp Thr Asn Ala Lys Tyr Asn Ser Arg Ala Ala Gln Leu  
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Tyr Arg Glu Lys Ile Lys Ser Leu Ala Ser Gln Ala Thr Arg Lys His  
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Gly Thr Asp Leu Trp Leu Asp Ser Cys Val Val Pro Pro Leu Ser Pro  
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Pro Pro Lys Glu Glu Asp Phe Phe Ala Ser His Val Ser Pro Glu Val  
145 150 155 160

Ser Asp Thr Ala Trp Ala Ser Ala Ile Ala Glu Pro Ser Ser Leu Thr  
165 170 175

Ser Arg Pro Val Glu Thr Thr Leu Glu Asn Asn Glu Gly Gly Gln Glu  
180 185 190

Gln Gly Pro Ser Val Glu Gly Leu Asn Val Pro Thr Lys Ala Thr Leu  
195 200 205

Glu Val Ser Ser Ile Ile Lys Lys Lys Pro Asn Gln Ala Lys Lys Gly  
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Leu Gly Ala Lys Lys Gly Ser Leu Gly Ala Gln Lys Leu Ala Asn Thr  
225 230 235 240

Cys Phe Asn Glu Ile Glu Lys Gln Ala Gln Ala Ala Asp Lys Met Lys  
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Glu Gln Glu Asp Leu Ala Lys Val Val Ser Lys Glu Glu Ser Ile Val  
260 265 270

Ser Ser Leu Arg Leu Ala Tyr Lys Asp Leu Glu Ile Gln Met Lys Lys  
275 280 285

Asp Glu Lys Met Asn Ile Ser Gly Lys Lys Asn Val Asp Ser Asp Arg  
290 295 300

Leu Gly Met Gly Phe Gly Asn Cys Arg Ser Val Ile Ser His Ser Val  
305 310 315 320

Thr Ser Asp Met Gln Thr Ile Glu Gln Glu Ser Pro Ile Met Ala Lys  
325 330 335

Pro Arg Lys Lys Tyr Asn Asp Asp Ser Asp Asp Ser Tyr Phe Thr Ser  
340 345 350

Ser Ser Ser Tyr Phe Asp Glu Pro Val Glu Leu Arg Ser Ser Ser Phe  
355 360 365

Ser Ser Trp Asp Asp Ser Ser Asp Ser Tyr Trp Lys Lys Glu Thr Ser  
 370 375 380

Lys Asp Thr Glu Thr Val Leu Lys Thr Thr Gly Tyr Ser Asp Arg Pro  
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Thr Ala Arg Arg Lys Pro Asp Tyr Glu Pro Val Glu Asn Thr Asp Glu  
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Ala Gln Lys Lys Phe Gly Asn Val Lys Ala Ile Ser Ser Asp Met Tyr  
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Phe Gly Arg Gln Ser Gln Ala Asp Tyr Glu Thr Arg Ala Arg Leu Glu  
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Arg Leu Ser Ala Ser Ser Ser Ile Ser Ser Ala Asp Leu Phe Glu Glu  
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Pro Arg Lys Gln Pro Ala Gly Asn Tyr Ser Leu Ser Ser Val Leu Pro  
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 <213> human organism

<400> 259

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Asn Asn Lys Glu Cys Cys Phe Thr Phe Thr Leu Asn Gly Asn Ser Arg  
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Lys Leu Asp Arg Ser Val Phe Thr Ala Tyr Gly Lys Pro Ser Glu Ser  
 65 70 75 80

Ile Tyr Ser Ala Leu Ser Ala Asn Asp Tyr Phe Ser Glu Arg Ile Lys  
 85 90 95

Asn Gln Phe Asn Lys Asn Ile Ile Val Tyr Glu Glu Lys Thr Ile Asp  
 100 105 110

Gly His Ile Asn Leu Gly Met Pro Leu Lys Cys Leu Pro Ser Asp Ser  
 115 120 125

His Phe Lys Ile Thr Phe Gly Gln Arg Lys Ser Ser Lys Glu Asp Gly  
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His Ile Leu Arg Gln Cys Glu Asn Pro Asn Met Glu Cys Ile Leu Phe  
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His Val Val Ala Ile Gly Arg Thr Arg Lys Lys Ile Val Lys Ile Asn  
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Glu Leu His Glu Lys Gly Ser Lys Leu Cys Ile Tyr Ala Leu Lys Gly  
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Glu Thr Ile Glu Gly Ala Leu Cys Lys Asp Gly Arg Phe Arg Ser Asp  
195 200 205

Ile Gly Glu Phe Glu Trp Lys Leu Lys Glu Gly His Lys Lys Ile Tyr  
210 215 220

Gly Lys Gln Ser Met Val Asp Glu Val Ser Gly Lys Val Leu Glu Met  
225 230 235 240

Asp Ile Ser Lys Lys Lys Ala Leu Gln Gln Lys Asp Ile His Lys Lys  
245 250 255

Ile Lys Gln Asn Glu Ser Ala Thr Asp Glu Ile Asn His Gln Ser Leu  
260 265 270

Ile Gln Ser Lys Lys Lys Val His Lys Pro Lys Lys Asp Gly Glu Thr  
275 280 285

Lys Asp Val Glu His Ser Arg Glu Gln Ile Leu Pro Pro Gln Asp Leu  
290 295 300

Ser His Tyr Ile Lys Asp Lys Thr Arg Gln Thr Ile Pro Arg Ile Arg  
305 310 315 320

Asn Tyr Tyr Phe Cys Ser Leu Pro Arg Lys Tyr Arg Gln Ile Asn Ser  
325 330 335

Gln Val Arg Arg Arg Pro His Leu Gly Arg Arg Tyr Ala Ile Asn Leu  
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Asp Val Gln Lys Glu Ala Ile Asn Leu Leu Lys Asn Tyr Gln Thr Leu  
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Asn Glu Ala Ile Met His Gln Tyr Pro Asn Phe Lys Glu Glu Ala Gln  
370 375 380

Trp Val Arg Lys Tyr Phe Arg Glu Glu Gln Lys Arg Met Asn Leu Ser  
385 390 395 400

Pro Ala Lys Gln Phe Asn Ile Tyr Lys Lys Asp Phe Gly Lys Met Thr

405

410

415

Ala Asn Ser Val Ser Val Ala Thr Cys Glu Gln Leu Thr Tyr Tyr Ser  
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Lys Ser Val Gly Phe Met Gln Trp Asp Asn Asn Gly Asn Thr Gly Asn  
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Ala Thr Cys Phe Val Phe Asn Gly Gly Tyr Ile Phe Thr Cys Arg His  
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Val Val His Leu Met Val Gly Lys Asn Thr His Pro Ser Leu Trp Pro  
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Asp Ile Ile Ser Lys Cys Ala Lys Val Thr Phe Thr Tyr Thr Glu Phe  
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Cys Pro Thr Pro Asp Asn Trp Phe Ser Ile Glu Pro Trp Leu Lys Val  
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Ser Asn Glu Asn Leu Asp Tyr Ala Ile Leu Lys Leu Lys Glu Asn Gly  
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Asn Ala Phe Pro Pro Gly Leu Trp Arg Gln Ile Ser Pro Gln Pro Ser  
 530 535 540

Thr Gly Leu Ile Tyr Leu Ile Gly His Pro Glu Gly Gln Ile Lys Lys  
 545 550 555 560

Ile Asp Gly Cys Thr Val Ile Pro Leu Asn Glu Arg Leu Lys Lys Tyr  
 565 570 575

Pro Asn Asp Cys Gln Asp Gly Leu Val Asp Leu Tyr Asp Thr Thr Ser  
 580 585 590

Asn Val Tyr Cys Met Phe Thr Gln Arg Ser Phe Leu Ser Glu Val Trp  
 595 600 605

Asn Thr His Thr Leu Ser Tyr Asp Thr Cys Phe Ser Asp Gly Ser Ser  
 610 615 620

Gly Ser Pro Val Phe Asn Ala Ser Gly Lys Leu Val Ala Leu His Thr  
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Phe Gly Leu Phe Tyr Gln Arg Gly Phe Asn Val His Ala Leu Ile Glu  
645 650 655

Phe Gly Tyr Ser Met Asp Ser Ile Leu Cys Asp Ile Lys Lys Thr Asn  
660 665 670

Glu Ser Leu Tyr Lys Ser Leu Asn Asp Glu Lys Leu Glu Thr Tyr Asp  
675 680 685

Glu Glu Lys Ala Arg Pro Arg Pro Ala Tyr Arg Arg Leu Gly Cys Phe  
690 695 700

Arg Phe Arg Ser Arg Phe Pro Ile Leu Gly Thr Gly Glu Thr Gly Arg  
705 710 715 720

Ile Glu Ala Gly Lys Asp Arg Arg Gly His Gly Val Ser Glu Thr Gly  
725 730 735

Ser Cys Ser Arg Arg Gln Gly Gly Ala Leu Trp Val Ser Pro Ala Gln  
740 745 750

Pro Ile Gly Phe Arg Ser Ser Trp Ser Ser Gly Ala Phe Ala Ser Ser  
755 760 765

Asn Thr Ser Gly Asn Cys Val Glu Arg Trp Ile Pro Gly Arg Val Leu  
770 775 780

Ala Arg Arg Ala Val Ser Lys Glu Gln Gln Asn Asn Cys Ser Thr Ser  
785 790 795 800

Leu Met Arg Met Glu Ser Arg Gly Asp Pro Arg Ala Thr Thr Asn Thr  
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Gln Ala Gln Arg Phe His Ser Pro Lys Lys Asn Pro Glu Asp Gln Thr  
820 825 830

Met Pro Gln Asn Arg Thr Ile Tyr Val Thr Leu Lys Ala Val Arg Lys  
835 840 845

Glu Ile Glu Thr His Gln Gly Gln Glu Met Leu Val Arg Gly Thr Glu  
850 855 860

Gly Ile Lys Glu Tyr Ile Asn Leu Gly Met Pro Leu Ser Cys Phe Pro  
865 870 875 880

Glu Gly Gly Gln Val Val Ile Thr Phe Ser Gln Ser Lys Ser Lys Gln  
885 890 895

Lys Glu Asp Asn His Ile Phe Gly Arg Gln Asp Lys Ala Ser Thr Glu  
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Cys Val Lys Phe Tyr Ile His Ala Ile Gly Ile Gly Lys Cys Lys Arg  
915 920 925

Arg Ile Val Lys Cys Gly Lys Leu His Lys Lys Gly Arg Lys Leu Cys  
930 935 940

Val Tyr Ala Phe Lys Gly Glu Thr Ile Lys Asp Ala Leu Cys Lys Asp  
945 950 955 960

Gly Arg Phe Leu Ser Phe Leu Glu Asn Asp Asp Trp Lys Leu Ile Glu  
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Thr Gly Tyr Ala Thr Cys Phe Val Phe Lys Gly Leu Phe Ile Leu  
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Val Ile Pro Gln Gly Gln Arg Ala Lys Lys Cys Gln Glu Arg Val  
1220 1225 1230

Gln Ser Lys Lys Ala Glu Ser Pro Glu Tyr Val His Met Tyr Thr  
1235 1240 1245

Gln Arg Ser Phe Gln Lys Ile Val His Asn Pro Asp Val Ile Thr  
1250 1255 1260

Tyr Asp Thr Glu Phe Phe Phe Gly Ala Ser Gly Ser Pro Val Phe  
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1280 1285 1290

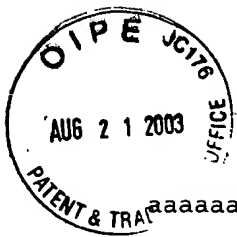
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Ser Asp Glu Asp Leu			
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2829

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<213> human organism

<400> 261

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Val Leu Glu Thr Leu Asn Glu Gln Arg Asn Arg Gly His Phe Cys Asp  
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Val Thr Val Arg Ile His Gly Ser Met Leu Arg Ala His Arg Cys Val  
35 40 45

Leu Ala Ala Gly Ser Pro Phe Phe Gln Asp Lys Leu Leu Leu Gly Tyr  
50 55 60

Ser Asp Ile Glu Ile Pro Ser Val Val Ser Val Gln Ser Val Gln Lys  
65 70 75 80

Leu Ile Asp Phe Met Tyr Ser Gly Val Leu Arg Val Ser Gln Ser Glu  
85 90 95

Ala Leu Gln Ile Leu Thr Ala Ala Ser Ile Leu Gln Ile Lys Thr Val  
100 105 110

Ile Asp Glu Cys Thr Arg Ile Val Ser Gln Asn Val Gly Asp Val Phe  
115 120 125

Pro Gly Ile Gln Asp Ser Gly Gln Asp Thr Pro Arg Gly Thr Pro Glu  
130 135 140

Ser Gly Thr Ser Gly Gln Ser Ser Asp Thr Glu Ser Gly Tyr Leu Gln  
145 150 155 160

Ser His Pro Gln His Ser Val Asp Arg Ile Tyr Ser Ala Leu Tyr Ala  
165 170 175

Cys Ser Met Gln Asn Gly Ser Gly Glu Arg Ser Phe Tyr Ser Gly Ala  
180 185 190



Val Val Ser His His Glu Thr Ala Leu Gly Leu Pro Arg Asp His His  
195 200 205

Met Glu Asp Pro Ser Trp Ile Thr Arg Ile His Glu Arg Ser Gln Gln  
210 215 220

Met Glu Arg Tyr Leu Ser Thr Thr Pro Glu Thr Thr His Cys Arg Lys  
225 230 235 240

Gln Pro Arg Pro Val Arg Ile Gln Thr Leu Val Gly Asn Ile His Ile  
245 250 255

Lys Gln Glu Met Glu Asp Asp Tyr Asp Tyr Tyr Gly Gln Gln Arg Val  
260 265 270

Gln Ile Leu Glu Arg Asn Glu Ser Glu Glu Cys Thr Glu Asp Thr Asp  
275 280 285

Gln Ala Glu Gly Thr Glu Ser Glu Pro Lys Gly Glu Ser Phe Asp Ser  
290 295 300

Gly Val Ser Ser Ser Ile Gly Thr Glu Pro Asp Ser Val Glu Gln Gln  
305 310 315 320

Phe Gly Pro Gly Ala Ala Arg Asp Ser Gln Ala Glu Pro Thr Gln Pro  
325 330 335

Glu Gln Ala Ala Glu Ala Pro Ala Glu Gly Gly Pro Gln Thr Asn Gln  
340 345 350

Leu Glu Thr Gly Ala Ser Ser Pro Glu Arg Ser Asn Glu Val Glu Met  
355 360 365

Asp Ser Thr Val Ile Thr Val Ser Asn Ser Ser Asp Lys Ser Val Leu  
370 375 380

Gln Gln Pro Ser Val Asn Thr Ser Ile Gly Gln Pro Leu Pro Ser Thr  
385 390 395 400

Gln Leu Tyr Leu Arg Gln Thr Glu Thr Leu Thr Ser Asn Leu Arg Met  
405 410 415

Pro Leu Thr Leu Thr Ser Asn Thr Gln Val Ile Gly Thr Ala Gly Asn  
420 425 430

Thr Tyr Leu Pro Ala Leu Phe Thr Thr Gln Pro Ala Gly Ser Gly Pro  
435 440 445

Lys Pro Phe Leu Phe Ser Leu Pro Gln Pro Leu Ala Gly Gln Gln Thr  
450 455 460

Gln Phe Val Thr Val Ser Gln Pro Gly Leu Ser Thr Phe Thr Ala Gln  
465 470 475 480

Leu Pro Ala Pro Gln Pro Leu Ala Ser Ser Ala Gly His Ser Thr Ala  
485 490 495

Ser Gly Gln Gly Glu Lys Lys Pro Tyr Glu Cys Thr Leu Cys Asn Lys  
500 505 510

Thr Phe Thr Ala Lys Gln Asn Tyr Val Lys His Met Phe Val His Thr  
515 520 525

Gly Glu Lys Pro His Gln Cys Ser Ile Cys Trp Arg Ser Phe Ser Leu  
530 535 540

Lys Asp Tyr Leu Ile Lys His Met Val Thr His Thr Gly Val Arg Ala  
545 550 555 560

Tyr Gln Cys Ser Ile Cys Asn Lys Arg Phe Thr Gln Lys Ser Ser Leu  
565 570 575

Asn Val His Met Arg Leu His Arg Gly Glu Lys Ser Tyr Glu Cys Tyr  
580 585 590

Ile Cys Lys Lys Lys Phe Ser His Lys Thr Leu Leu Glu Arg His Val  
595 600 605

Ala Leu His Ser Ala Ser Asn Gly Thr Pro Pro Ala Gly Thr Pro Pro  
610 615 620

Gly Ala Arg Ala Gly Pro Pro Gly Val Val Ala Cys Thr Glu Gly Thr  
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Thr Tyr Val Cys Ser Val Cys Pro Ala Lys Phe Asp Gln Ile Glu Gln  
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Phe Asn Asp His Met Arg Met His Val Ser Asp Gly  
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Lys Thr Asp Thr Val Val Glu Ser Ser Val Ser Gly Asp His Ser Gly  
35 40 45

Thr Leu Arg Arg Ser Gln Ser Asp Arg Thr Glu Tyr Asn Gln Lys Leu  
50 55 60

Gln Glu Lys Met Thr Pro Gln Gly Glu Cys Ser Val Ala Glu Thr Leu  
65 70 75 80

Thr Pro Glu Glu Glu His His Met Lys Arg Met Met Ala Lys Arg Glu  
85 90 95

Lys Ile Ile Lys Glu Leu Ile Gln Thr Glu Lys Asp Tyr Leu Asn Asp  
100 105 110

Leu Glu Leu Cys Val Arg Glu Val Val Gln Pro Leu Arg Asn Lys Lys  
115 120 125

Thr Asp Arg Leu Asp Val Asp Ser Leu Phe Ser Asn Ile Glu Ser Val  
130 135 140

His Gln Ile Ser Ala Lys Leu Leu Ser Leu Leu Glu Glu Ala Thr Thr  
145 150 155 160

Asp Val Glu Pro Ala Met Gln Val Ile Gly Glu Val Phe Leu Gln Ile  
165 170 175

Lys Gly Pro Leu Glu Asp Ile Tyr Lys Ile Tyr Cys Tyr His His Asp  
180 185 190

Glu Ala His Ser Ile Leu Glu Ser Tyr Glu Lys Glu Glu Glu Leu Lys  
195 200 205

Glu His Leu Ser His Cys Ile Gln Ser Leu Lys  
210 215

<210> 264

<211> 3812

<212> DNA

<213> human organism

<400> 264

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<212> PRT
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<400> 265

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Gln Arg Lys Asn Gly Gly Arg Phe Cys Asp Val Leu Leu Arg Val Gly
35             40             45

Asp Glu Ser Phe Pro Ala His Arg Ala Val Leu Ala Ala Cys Ser Glu
50             55             60

Tyr Phe Glu Ser Val Phe Ser Ala Gln Leu Gly Asp Gly Gly Ala Ala
65             70             75             80

Asp Gly Gly Pro Ala Asp Val Gly Gly Ala Thr Ala Ala Pro Gly Gly
85             90             95

Gly Ala Gly Gly Ser Arg Glu Leu Glu Met His Thr Ile Ser Ser Lys
100            105            110

Val Phe Gly Asp Ile Leu Asp Phe Ala Tyr Thr Ser Arg Ile Val Val
115            120            125

Arg Leu Glu Ser Phe Pro Glu Leu Met Thr Ala Ala Lys Phe Leu Leu

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Val Gln Ile Leu Val Pro Pro Ala Arg Ala Asp Ile Met Leu Phe Arg		
	165	170 175
Pro Pro Gly Thr Ser Asp Leu Gly Phe Pro Leu Asp Met Thr Asn Gly		
	180	185 190
Ala Ala Leu Ala Ala Asn Ser Asn Gly Ile Ala Gly Ser Met Gln Pro		
	195	200 205
Glu Glu Glu Ala Ala Arg Ala Ala Gly Ala Ala Ile Ala Gly Gln Ala		
	210	215 220
Ser Leu Pro Val Leu Pro Gly Val Asp Arg Leu Pro Met Val Ala Gly		
225	230	235 240
Pro Leu Ser Pro Gln Leu Leu Thr Ser Pro Phe Pro Ser Val Ala Ser		
	245	250 255
Ser Ala Pro Pro Leu Thr Gly Lys Arg Gly Arg Gly Arg Pro Arg Lys		
	260	265 270
Ala Asn Leu Leu Asp Ser Met Phe Gly Ser Pro Gly Gly Leu Arg Glu		
	275	280 285
Ala Gly Ile Leu Pro Cys Gly Leu Cys Gly Lys Val Phe Thr Asp Ala		
	290	295 300
Asn Arg Leu Arg Gln His Glu Ala Gln His Gly Val Thr Ser Leu Gln		
305	310	315 320
Leu Gly Tyr Ile Asp Leu Pro Pro Pro Arg Leu Gly Glu Asn Gly Leu		
	325	330 335
Pro Ile Ser Glu Asp Pro Asp Gly Pro Arg Lys Arg Ser Arg Thr Arg		
	340	345 350
Lys Gln Val Ala Cys Glu Ile Cys Gly Lys Ile Phe Arg Asp Val Tyr		
	355	360 365



His Leu Asn Arg His Lys Leu Ser His Ser Gly Glu Lys Pro Tyr Ser  
370 375 380

Cys Pro Val Cys Gly Leu Arg Phe Lys Arg Lys Asp Arg Met Ser Tyr  
385 390 395 400

His Val Arg Ser His Asp Gly Ser Val Gly Lys Pro Tyr Ile Cys Gln  
405 410 415

Ser Cys Gly Lys Gly Phe Ser Arg Pro Asp His Leu Asn Gly His Ile  
420 425 430

Lys Gln Val His Thr Ser Glu Arg Pro His Lys Cys Gln Thr Cys Asn  
435 440 445

Ala Ser Phe Ala Thr Arg Asp Arg Leu Arg Ser His Leu Ala Cys His  
450 455 460

Glu Asp Lys Val Pro Cys Gln Val Cys Gly Lys Tyr Leu Arg Ala Ala  
465 470 475 480

Tyr Met Ala Asp His Leu Lys Lys His Ser Glu Gly Pro Ser Asn Phe  
485 490 495

Cys Ser Ile Cys Asn Arg Glu Gly Gln Lys Cys Ser His Gln Asp Pro  
500 505 510

Ile Glu Ser Ser Asp Ser Tyr Gly Asp Leu Ser Asp Ala Ser Asp Leu  
515 520 525

Lys Thr Pro Glu Lys Gln Ser Ala Asn Gly Ser Phe Ser Cys Asp Met  
530 535 540

Ala Val Pro Lys Asn Lys Met Glu Ser Asp Gly Glu Lys Lys Tyr Pro  
545 550 555 560

Cys Pro Glu Cys Gly Ser Phe Phe Arg Ser Lys Ser Tyr Leu Asn Lys  
565 570 575

His Ile Gln Lys Val His Val Arg Ala Leu Gly Gly Pro Leu Gly Asp  
580 585 590

Leu Gly Pro Ala Leu Gly Ser Pro Phe Ser Pro Gln Gln Asn Met Ser  
595 600 605

Leu Leu Glu Ser Phe Gly Phe Gln Ile Val Gln Ser Ala Phe Ala Ser  
610 615 620

Ser Leu Val Asp Pro Glu Val Asp Gln Gln Pro Met Gly Pro Glu Gly  
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Lys

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<212> DNA  
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gcaccatgac tgaccctgat ggaaaccca agtgcaaac caagatcaac tacgggggtg 960  
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cccgtctggg aagctcatct tgcgaagctg agggagctca gggcaaaggc caggctagcg	2700
cggaccggaa ggggcccagg ctgcacgggc ctctgccaga acgctcagga catcccggcc	2760

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2818

<210> 267

<211> 403

<212> PRT

<213> human organism

<400> 267

Met Ser Gly Arg Val Gly Asp Leu Ser Pro Arg Gln Lys Glu Ala Leu  
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Ala Lys Phe Arg Glu Asn Val Gln Asp Val Leu Pro Ala Leu Pro Asn  
20 25 30

Pro Asp Asp Tyr Phe Leu Leu Arg Trp Leu Arg Ala Arg Ser Phe Asp  
35 40 45

Leu Gln Lys Ser Glu Ala Met Leu Arg Lys His Val Glu Phe Arg Lys  
50 55 60

Gln Lys Asp Ile Asp Asn Ile Ile Ser Trp Gln Pro Pro Glu Val Ile  
65 70 75 80

Gln Gln Tyr Leu Ser Gly Gly Met Cys Gly Tyr Asp Leu Asp Gly Cys  
85 90 95

Pro Val Trp Tyr Asp Ile Ile Gly Pro Leu Asp Ala Lys Gly Leu Leu  
100 105 110

Phe Ser Ala Ser Lys Gln Asp Leu Leu Arg Thr Lys Met Arg Glu Cys  
115 120 125

Glu Leu Leu Leu Gln Glu Cys Ala His Gln Thr Thr Lys Leu Gly Arg  
130 135 140

Lys Val Glu Thr Ile Thr Ile Ile Tyr Asp Cys Glu Gly Leu Gly Leu  
145 150 155 160

Lys His Leu Trp Lys Pro Ala Val Glu Ala Tyr Gly Glu Phe Leu Cys  
165 170 175

Met Phe Glu Glu Asn Tyr Pro Glu Thr Leu Lys Arg Leu Phe Val Val  
180 185 190

Lys Ala Pro Lys Leu Phe Pro Val Ala Tyr Asn Leu Ile Lys Pro Phe  
195 200 205

Leu Ser Glu Asp Thr Arg Lys Lys Ile Met Val Leu Gly Ala Asn Trp  
210 215 220

Lys Glu Val Leu Leu Lys His Ile Ser Pro Asp Gln Val Pro Val Glu  
225 230 235 240

Tyr Gly Gly Thr Met Thr Asp Pro Asp Gly Asn Pro Lys Cys Lys Ser  
245 250 255

Lys Ile Asn Tyr Gly Gly Asp Ile Pro Arg Lys Tyr Tyr Val Arg Asp  
260 265 270

Gln Val Lys Gln Gln Tyr Glu His Ser Val Gln Ile Ser Arg Gly Ser  
275 280 285

Ser His Gln Val Glu Tyr Glu Ile Leu Phe Pro Gly Cys Val Leu Arg  
290 295 300

Trp Gln Phe Met Ser Asp Gly Ala Asp Val Gly Phe Gly Ile Phe Leu  
305 310 315 320

Lys Thr Lys Met Gly Glu Arg Gln Arg Ala Gly Glu Met Thr Glu Val  
325 330 335

Leu Pro Asn Gln Arg Tyr Asn Ser His Leu Val Pro Glu Asp Gly Thr  
340 345 350

Leu Thr Cys Ser Asp Pro Gly Ile Tyr Val Leu Arg Phe Asp Asn Thr  
355 360 365

Tyr Ser Phe Ile His Ala Lys Lys Val Asn Phe Thr Val Glu Val Leu  
370 375 380

Leu Pro Asp Lys Ala Ser Glu Glu Lys Met Lys Gln Leu Gly Ala Gly  
385 390 395 400

Thr Pro Lys

<210> 268  
<211> 1464  
<212> DNA  
<213> human organism

<400> 268  
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tatatccgag accgcttctg tccatttagg cttatcccag gtggagctca cgggcaacag 180  
tatttatgaa tacatccatc cttctgacca cgatgagatg accgctgtcc tcacggccca 240  
ccagccgctg caccaccacc tgctccaagg tatgagatag agaggtcggt ctttcttcga 300  
atgaaatgtg tcttggcgaa aaggaacgcg ggcctgacct gcagcggata caaggatcgc 360  
cactgcagtg gctacttgaa gatcaggcag tatatgctgg acatgtccct gtacgactcc 420  
tgctaccaga ttgtggggct ggtggccgtg ggccagtcgc tgccaccagc tgccatcacc 480  
gagatcaagc tgtacagtaa catgttcagc ttcagggcca gccttgacct gaagctgata 540  
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accctatacc atcacgtgca cggctgacg gtgtccacc tccgctacgc acaccacctc 660  
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caagaaacta ggaaattagt gaaacccaaa aataccaaga tgaagacaaa gctgagaaca 960  
aacccttacc cccacagca atacagctcg ttccaaatgg acaaactgga atgcggccag 1020  
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cactcagaaa gcagtgcct tctgtacacg ccactctaca gcctgccctt ctctaccat 1140  
tacggacact tccctctgga ctctcacgtc ttcagcagca aaaagccaat gttgccggcc 1200  
aagttcgggc agcccaagg atccccctgt gaggtggcac gctttttcct gagcactg 1260  
ccagccagcg gtgaatgccg gtggcattat gccaaccccc tagtgccatg cagctcgtct 1320  
ccagctaaaa atcctccaga gccaccggcg aacctgcta ggcacagcct ggtgccaaagc 1380  
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ctctgtttg ctgctggac caac 1464

<210> 269  
<211> 667  
<212> PRT  
<213> human organism

<400> 269

Met Lys Glu Lys Ser Lys Asn Ala Ala Lys Thr Arg Arg Glu Lys Glu  
1 5 10 15

Asn Gly Glu Phe Tyr Glu Leu Ala Lys Leu Leu Pro Leu Pro Ser Ala  
20 25 30

Ile Thr Ser Gln Leu Asp Lys Ala Ser Ile Ile Arg Leu Thr Thr Ser  
35 40 45

Tyr Leu Lys Met Arg Ala Val Phe Pro Glu Gly Leu Gly Asp Ala Trp  
50 55 60

Gly Gln Pro Ser Arg Ala Gly Pro Leu Asp Gly Val Ala Lys Glu Leu  
65 70 75 80

Gly Ser His Leu Leu Gln Thr Leu Asp Gly Phe Val Phe Val Val Ala  
85 90 95

Ser Asp Gly Lys Ile Met Tyr Ile Ser Glu Thr Ala Ser Val His Leu  
100 105 110

Gly Leu Ser Gln Val Glu Leu Thr Gly Asn Ser Ile Tyr Glu Tyr Ile  
115 120 125

His Pro Ser Asp His Asp Glu Met Thr Ala Val Leu Thr Ala His Gln  
130 135 140

Pro Leu His His His Leu Leu Gln Glu Tyr Glu Ile Glu Arg Ser Phe  
145 150 155 160

Phe Leu Arg Met Lys Cys Val Leu Ala Lys Arg Asn Ala Gly Leu Thr  
165 170 175

Cys Ser Gly Tyr Lys Val Ile His Cys Ser Gly Tyr Leu Lys Ile Arg  
180 185 190

Gln Tyr Met Leu Asp Met Ser Leu Tyr Asp Ser Cys Tyr Gln Ile Val

195	200	205
Gly Leu Val Ala Val Gly Gln Ser Leu Pro Pro Ser Ala Ile Thr Glu 210 215 220		
Ile Lys Leu Tyr Ser Asn Met Phe Met Phe Arg Ala Ser Leu Asp Leu 225 230 235 240		
Lys Leu Ile Phe Leu Asp Ser Arg Val Thr Glu Val Thr Gly Tyr Glu 245 250 255		
Pro Gln Asp Leu Ile Glu Lys Thr Leu Tyr His His Val His Gly Cys 260 265 270		
Asp Val Phe His Leu Arg Tyr Ala His His Leu Leu Leu Val Lys Gly 275 280 285		
Gln Val Thr Thr Lys Tyr Tyr Arg Leu Leu Ser Lys Arg Gly Gly Trp 290 295 300		
Val Trp Val Gln Ser Tyr Ala Thr Val Val His Asn Ser Arg Ser Ser 305 310 315 320		
Arg Pro His Cys Ile Val Ser Val Asn Tyr Val Leu Thr Glu Ile Glu 325 330 335		
Tyr Lys Glu Leu Gln Leu Ser Leu Glu Gln Val Ser Thr Ala Lys Ser 340 345 350		
Gln Asp Ser Trp Arg Thr Ala Leu Ser Thr Ser Gln Glu Thr Arg Lys 355 360 365		
Leu Val Lys Pro Lys Asn Thr Lys Met Lys Thr Lys Leu Arg Thr Asn 370 375 380		
Pro Tyr Pro Pro Gln Gln Tyr Ser Ser Phe Gln Met Asp Lys Leu Glu 385 390 395 400		
Cys Gly Gln Leu Gly Asn Trp Arg Ala Ser Pro Pro Ala Ser Ala Ala 405 410 415		
Ala Pro Pro Glu Leu Gln Pro His Ser Glu Ser Ser Asp Leu Leu Tyr 420 425 430		



Thr Pro Ser Tyr Ser Leu Pro Phe Ser Tyr His Tyr Gly His Phe Pro  
435 440 445

Leu Asp Ser His Val Phe Ser Ser Lys Lys Pro Met Leu Pro Ala Lys  
450 455 460

Phe Gly Gln Pro Gln Gly Ser Pro Cys Glu Val Ala Arg Phe Phe Leu  
465 470 475 480

Ser Thr Leu Pro Ala Ser Gly Glu Cys Gln Trp His Tyr Ala Asn Pro  
485 490 495

Leu Val Pro Ser Ser Ser Ser Pro Ala Lys Asn Pro Pro Glu Pro Pro  
500 505 510

Ala Asn Thr Ala Arg His Ser Leu Val Pro Ser Tyr Glu Ala Pro Ala  
515 520 525

Ala Ala Val Arg Arg Phe Gly Glu Asp Thr Ala Pro Pro Ser Phe Pro  
530 535 540

Ser Cys Gly His Tyr Arg Glu Glu Pro Ala Leu Gly Pro Ala Lys Ala  
545 550 555 560

Ala Arg Gln Ala Ala Arg Asp Gly Ala Arg Leu Ala Leu Ala Arg Ala  
565 570 575

Ala Pro Glu Cys Cys Ala Pro Pro Thr Pro Glu Ala Pro Gly Ala Pro  
580 585 590

Ala Gln Leu Pro Phe Val Leu Leu Asn Tyr His Arg Val Leu Ala Arg  
595 600 605

Arg Gly Pro Leu Gly Gly Ala Ala Pro Ala Ala Ser Gly Leu Ala Cys  
610 615 620

Ala Pro Gly Gly Pro Glu Ala Ala Thr Gly Ala Leu Arg Leu Arg His  
625 630 635 640

Pro Ser Pro Ala Ala Thr Ser Pro Pro Gly Ala Pro Leu Pro His Tyr  
645 650 655

Leu Gly Ala Ser Val Ile Ile Thr Asn Gly Arg  
660 665

<210> 270  
<211> 1192  
<212> DNA  
<213> human organism

<220>  
<221> misc\_feature  
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<223> n is a, c, g, or t

<400> 270  
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ggaaactcca tagaccttgt ccactggaac tcgttcccat ctaccctcca ctctatccag 180  
ggtgatggat ctctgcagta agtgaagag ttcttcatgg cccccaaggt tatatccatc 240  
tagaacttca gcacgtaatt tcattctggaa atagtgcctt tgtggatata agttaggtaa 300  
aactgaagat gagatcatatc tggattagga tgggatctaa atccaatgaa aatgtcttca 360  
taaaaaacag gaaagaaccc atagaaacac aaggaagaag gtcattgtgaa gatggaggca 420  
gagattggag ggatgcagcc accggcccag gaatgccagc agccaccagc aagctggaag 480  
gaaatgaggg attctctcct agaaccttta gagagracat ggtcctgtga acagcttgat 540  
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aaaatatgaa gtgaacattg tggtagcttt aagatgttta gtgtagctgc aggcacccta 780  
tacacatgaa aacccccaaag gggaatcccc atatcacagt gtagtgtgat atttgacatt 840  
ygtgatcaty tagagatgta cagaaaaggt gaatctgtgt tctgtatatt ctgcctaagg 900  
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<210> 271  
 <211> 1365  
 <212> DNA  
 <213> human organism

<400> 271  
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 tttgccaaat ccttgaccat tcgacttatt agatgcggct atcatgtggc cataggaagt 180  
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 gatgctctca caaaaacaaa tataatatTTT gttgctatac acagagaaca ttatacctcc 300  
 ctgtgggacc tgagacatct gcttgtgggt aaaatcctga ttgatgtgag caataacatg 360  
 aggataaacc agtaccaga atccaatgct gaatatTTTg cttcattatt cccagattct 420  
 ttgattgtca aaggatttaa tgttgtctca gcttggggcac ttcagttagg acctaaggat 480  
 gccagccggc aggtttatat atgcagcaac aatattcaag cgcgacaaca ggttattgaa 540  
 cttgcccggc agttgaattt cattcccatt gacttgggat ccttatcatc agccagagag 600  
 attgaaaatt taccctacg actctttact ctctggagag ggccagtggg ggtagctata 660  
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<210> 272  
 <211> 454  
 <212> PRT

<213> human organism

<400> 272

Met Glu Ser Ile Ser Met Met Gly Ser Pro Lys Ser Leu Ser Glu Thr  
1 5 10 15

Cys Leu Pro Asn Gly Ile Asn Gly Ile Lys Asp Ala Arg Lys Val Thr  
20 25 30

Val Gly Val Ile Gly Ser Gly Asp Phe Ala Lys Ser Leu Thr Ile Arg  
35 40 45

Leu Ile Arg Cys Gly Tyr His Val Val Ile Gly Ser Arg Asn Pro Lys  
50 55 60

Phe Ala Ser Glu Phe Phe Pro His Val Val Asp Val Thr His His Glu  
65 70 75 80

Asp Ala Leu Thr Lys Thr Asn Ile Ile Phe Val Ala Ile His Arg Glu  
85 90 95

His Tyr Thr Ser Leu Trp Asp Leu Arg His Leu Leu Val Gly Lys Ile  
100 105 110

Leu Ile Asp Val Ser Asn Asn Met Arg Ile Asn Gln Tyr Pro Glu Ser  
115 120 125

Asn Ala Glu Tyr Leu Ala Ser Leu Phe Pro Asp Ser Leu Ile Val Lys  
130 135 140

Gly Phe Asn Val Val Ser Ala Trp Ala Leu Gln Leu Gly Pro Lys Asp  
145 150 155 160

Ala Ser Arg Gln Val Tyr Ile Cys Ser Asn Asn Ile Gln Ala Arg Gln  
165 170 175

Gln Val Ile Glu Leu Ala Arg Gln Leu Asn Phe Ile Pro Ile Asp Leu  
180 185 190

Gly Ser Leu Ser Ser Ala Arg Glu Ile Glu Asn Leu Pro Leu Arg Leu  
195 200 205

Phe Thr Leu Trp Arg Gly Pro Val Val Val Ala Ile Ser Leu Ala Thr

210	215	220
Phe Phe Phe Leu Tyr Ser Phe Val Arg Asp Val Ile His Pro Tyr Ala		
225	230	235 240
Arg Asn Gln Gln Ser Asp Phe Tyr Lys Ile Pro Ile Glu Ile Val Asn		
	245	250 255
Lys Thr Leu Pro Ile Val Ala Ile Thr Leu Leu Ser Leu Val Tyr Leu		
	260	265 270
Ala Gly Leu Leu Ala Ala Ala Tyr Gln Leu Tyr Tyr Gly Thr Lys Tyr		
	275	280 285
Arg Arg Phe Pro Pro Trp Leu Glu Thr Trp Leu Gln Cys Arg Lys Gln		
	290	295 300
Leu Gly Leu Leu Ser Phe Phe Phe Ala Met Val His Val Ala Tyr Ser		
305	310	315 320
Leu Cys Leu Pro Met Arg Arg Ser Glu Arg Tyr Leu Phe Leu Asn Met		
	325	330 335
Ala Tyr Gln Gln Val His Ala Asn Ile Glu Asn Ser Trp Asn Glu Glu		
	340	345 350
Glu Val Trp Arg Ile Glu Met Tyr Ile Ser Phe Gly Ile Met Ser Leu		
	355	360 365
Gly Leu Leu Ser Leu Leu Ala Val Thr Ser Ile Pro Ser Val Ser Asn		
	370	375 380
Ala Leu Asn Trp Arg Glu Phe Ser Phe Ile Gln Ser Thr Leu Gly Tyr		
385	390	395 400
Val Ala Leu Leu Ile Ser Thr Phe His Val Leu Ile Tyr Gly Trp Lys		
	405	410 415
Arg Ala Phe Glu Glu Glu Tyr Tyr Arg Phe Tyr Thr Pro Pro Asn Phe		
	420	425 430
Val Leu Ala Leu Val Leu Pro Ser Ile Val Ile Leu Asp Leu Leu Gln		
	435	440 445

Leu Cys Arg Tyr Pro Asp  
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<210> 273  
<211> 1933  
<212> DNA  
<213> human organism

<400> 273  
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cactgagttc tcaccagac atcgacacag acattgattc agtggcttct cagccaatgg 1020  
aacttcaga gaatttgtct ctggagccta aagaccagga ttcagtcttg ctagaaaagg 1080  
acaaagtaaa taattcatca agatccaaga aacccaaagg gttaggactg gcacccaccc 1140  
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 <211> 431  
 <212> PRT  
 <213> human organism

<400> 274

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Phe Lys Leu Leu Gln Ala Glu Glu Val Ala Arg Leu Trp Gly Ile Arg  
 35 40 45

Lys Asn Lys Pro Asn Met Asn Tyr Asp Lys Leu Ser Arg Ala Leu Arg  
 50 55 60

Tyr Tyr Tyr Val Lys Asn Ile Ile Lys Lys Val Asn Gly Gln Lys Phe  
 65 70 75 80

Val Tyr Lys Phe Val Ser Tyr Pro Glu Ile Leu Asn Met Asp Pro Met  
 85 90 95

Thr Val Gly Arg Ile Glu Gly Asp Cys Glu Ser Leu Asn Phe Ser Glu  
 100 105 110

Val Ser Ser Ser Ser Lys Asp Val Glu Asn Gly Gly Lys Asp Lys Pro  
115 120 125

Pro Gln Pro Gly Ala Lys Thr Ser Ser Arg Asn Asp Tyr Ile His Ser  
130 135 140

Gly Leu Tyr Ser Ser Phe Thr Leu Asn Ser Leu Asn Ser Ser Asn Val  
145 150 155 160

Lys Leu Phe Lys Leu Ile Lys Thr Glu Asn Pro Ala Glu Lys Leu Ala  
165 170 175

Glu Lys Lys Ser Pro Gln Glu Pro Thr Pro Ser Val Ile Lys Phe Val  
180 185 190

Thr Thr Pro Ser Lys Lys Pro Pro Val Glu Pro Val Ala Ala Thr Ile  
195 200 205

Ser Ile Gly Pro Ser Ile Ser Pro Ser Ser Glu Glu Thr Ile Gln Ala  
210 215 220

Leu Glu Thr Leu Val Ser Pro Lys Leu Pro Ser Leu Glu Ala Pro Thr  
225 230 235 240

Ser Ala Ser Asn Val Met Thr Ala Phe Ala Thr Thr Pro Pro Ile Ser  
245 250 255

Ser Ile Pro Pro Leu Gln Glu Pro Pro Arg Thr Pro Ser Pro Pro Leu  
260 265 270

Ser Ser His Pro Asp Ile Asp Thr Asp Ile Asp Ser Val Ala Ser Gln  
275 280 285

Pro Met Glu Leu Pro Glu Asn Leu Ser Leu Glu Pro Lys Asp Gln Asp  
290 295 300

Ser Val Leu Leu Glu Lys Asp Lys Val Asn Asn Ser Ser Arg Ser Lys  
305 310 315 320

Lys Pro Lys Gly Leu Gly Leu Ala Pro Thr Leu Val Ile Thr Ser Ser  
325 330 335

Asp Pro Ser Pro Leu Gly Ile Leu Ser Pro Ser Leu Pro Thr Ala Ser



340

345

350

Leu Thr Pro Ala Phe Phe Ser Gln Thr Pro Ile Ile Leu Thr Pro Ser  
 355 360 365

Pro Leu Leu Ser Ser Ile His Phe Trp Ser Thr Leu Ser Pro Val Ala  
 370 375 380

Pro Leu Ser Pro Ala Arg Leu Gln Gly Ala Asn Thr Leu Phe Gln Phe  
 385 390 395 400

Pro Ser Val Leu Asn Ser His Gly Pro Phe Thr Leu Ser Gly Leu Asp  
 405 410 415

Gly Pro Ser Thr Pro Gly Pro Phe Ser Pro Asp Leu Gln Lys Thr  
 420 425 430

&lt;210&gt; 275

&lt;211&gt; 3060

&lt;212&gt; DNA

&lt;213&gt; human organism

&lt;400&gt; 275

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 <213> human organism

<400> 276

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Gln Lys Lys Lys Asn Asp Leu Arg Tyr Ile Glu Met Gln His Phe Arg  
 35 40 45

Glu Lys Leu Pro Ser Tyr Gly Met Gln Lys Glu Leu Val Asn Leu Ile  
 50 55 60

Asp Asn His Gln Val Thr Val Ile Ser Gly Glu Thr Gly Cys Gly Lys  
 65 70 75 80

Thr Thr Gln Val Thr Gln Phe Ile Leu Asp Asn Tyr Ile Glu Arg Gly  
 85 90 95

Lys Gly Ser Ala Cys Arg Ile Val Cys Thr Gln Pro Arg Arg Ile Ser  
 100 105 110

Ala Ile Ser Val Ala Glu Arg Val Ala Ala Glu Arg Ala Glu Ser Cys  
 115 120 125

Gly Ser Gly Asn Ser Thr Gly Tyr Gln Ile Arg Leu Gln Ser Arg Leu  
130 135 140

Pro Arg Lys Gln Gly Ser Ile Leu Tyr Cys Thr Thr Gly Ile Ile Leu  
145 150 155 160

Gln Trp Leu Gln Ser Asp Pro Tyr Leu Ser Ser Val Ser His Ile Val  
165 170 175

Leu Asp Glu Ile His Glu Arg Asn Leu Gln Ser Asp Val Leu Met Thr  
180 185 190

Val Val Lys Asp Leu Leu Asn Phe Arg Ser Asp Leu Lys Val Ile Leu  
195 200 205

Met Ser Ala Thr Leu Asn Ala Glu Lys Phe Ser Glu Tyr Phe Gly Asn  
210 215 220

Cys Pro Met Ile His Ile Pro Gly Phe Thr Phe Pro Val Val Glu Tyr  
225 230 235 240

Leu Leu Glu Asp Val Ile Glu Lys Ile Arg Tyr Val Pro Glu Gln Lys  
245 250 255

Glu His Arg Ser Gln Phe Lys Arg Gly Phe Met Gln Gly His Val Asn  
260 265 270

Arg Gln Glu Lys Glu Glu Lys Glu Ala Ile Tyr Lys Glu Arg Trp Pro  
275 280 285

Asp Tyr Val Arg Glu Leu Arg Arg Arg Tyr Ser Ala Ser Thr Val Asp  
290 295 300

Val Ile Glu Met Met Glu Asp Asp Lys Val Asp Leu Asn Leu Ile Val  
305 310 315 320

Ala Leu Ile Arg Tyr Ile Val Leu Glu Glu Glu Asp Gly Ala Ile Leu  
325 330 335

Val Phe Leu Pro Gly Trp Asp Asn Ile Ser Thr Leu His Asp Leu Leu  
340 345 350

Met Ser Gln Val Met Phe Lys Ser Asp Lys Phe Leu Ile Ile Pro Leu

355

360

365

His Ser Leu Met Pro Thr Val Asn Gln Thr Gln Val Phe Lys Arg Thr  
 370 375 380

Pro Pro Gly Val Arg Lys Ile Val Ile Ala Thr Asn Ile Ala Glu Thr  
 385 390 395 400

Ser Ile Thr Ile Asp Asp Val Val Tyr Val Ile Asp Gly Gly Lys Ile  
 405 410 415

Lys Glu Thr His Phe Asp Thr Gln Asn Asn Ile Ser Thr Met Ser Ala  
 420 425 430

Glu Trp Val Ser Lys Ala Asn Ala Lys Gln Arg Lys Gly Arg Ala Gly  
 435 440 445

Arg Val Gln Pro Gly His Cys Tyr His Leu Tyr Asn Gly Leu Arg Ala  
 450 455 460

Ser Leu Leu Asp Asp Tyr Gln Leu Pro Glu Ile Leu Arg Thr Pro Leu  
 465 470 475 480

Glu Glu Leu Cys Leu Gln Ile Lys Ile Leu Arg Leu Gly Gly Ile Ala  
 485 490 495

Tyr Phe Leu Ser Arg Leu Met Asp Pro Pro Ser Asn Glu Ala Val Leu  
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Leu Ser Ile Arg His Leu Met Glu Leu Asn Ala Leu Asp Lys Gln Glu  
 515 520 525

Glu Leu Thr Pro Leu Gly Val His Leu Ala Arg Leu Pro Val Glu Pro  
 530 535 540

His Ile Gly Lys Met Ile Leu Phe Gly Ala Leu Phe Cys Cys Leu Asp  
 545 550 555 560

Pro Val Leu Thr Ile Ala Ala Ser Leu Ser Phe Lys Asp Pro Phe Val  
 565 570 575

Ile Pro Leu Gly Lys Glu Lys Ile Ala Asp Ala Arg Arg Lys Glu Leu  
 580 585 590

Ala Lys Asp Thr Arg Ser Asp His Leu Thr Val Val Asn Ala Phe Glu  
595 600 605

Gly Trp Glu Glu Ala Arg Arg Arg Gly Phe Arg Tyr Glu Lys Asp Tyr  
610 615 620

Cys Trp Glu Tyr Phe Leu Ser Ser Asn Thr Leu Gln Met Leu His Asn  
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Met Lys Gly Gln Phe Ala Glu His Leu Leu Gly Ala Gly Phe Val Ser  
645 650 655

Ser Arg Asn Pro Lys Asp Pro Glu Ser Asn Ile Asn Ser Asp Asn Glu  
660 665 670

Lys Ile Ile Lys Ala Val Ile Cys Ala Gly Leu Tyr Pro Lys Val Ala  
675 680 685

Lys Ile Arg Leu Asn Leu Gly Lys Lys Arg Lys Met Val Lys Val Tyr  
690 695 700

Thr Lys Thr Asp Gly Leu Val Ala Val His Pro Lys Ser Val Asn Val  
705 710 715 720

Glu Gln Thr Asp Phe His Tyr Asn Trp Leu Ile Tyr His Leu Lys Met  
725 730 735

Arg Thr Ser Ser Ile Tyr Leu Tyr Asp Cys Thr Glu Val Ser Pro Tyr  
740 745 750

Cys Leu Leu Phe Phe Gly Gly Asp Ile Ser Ile Gln Lys Asp Asn Asp  
755 760 765

Gln Glu Thr Ile Ala Val Asp Glu Trp Ile Val Phe Gln Ser Pro Ala  
770 775 780

Arg Ile Ala His Leu Val Lys Glu Leu Arg Lys Glu Leu Asp Ile Leu  
785 790 795 800

Leu Gln Glu Lys Ile Glu Ser Pro His Pro Val Asp Trp Asn Asp Thr  
805 810 815

Lys Ser Arg Asp Cys Ala Val Leu Ser Ala Ile Ile Asp Leu Ile Lys  
820 825 830

Thr Gln Glu Lys Ala Thr Pro Arg Asn Phe Pro Pro Arg Phe Gln Asp  
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Gly Tyr Tyr Ser  
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<400> 278

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Arg Asp Glu Ala Gly Val Glu Leu Leu Met Thr Tyr Phe Ile Gln Leu  
 35 40 45

Gly Phe Val Glu Ser Arg Phe Phe Pro Pro Thr Arg Gln Met Gly Leu  
 50 55 60

Leu Phe Thr Trp Tyr Asp Ser Leu Thr Gly Val Pro Val Ser Gln Gln  
 65 70 75 80

Asn Leu Leu Leu Glu Lys Ala Ser Val Leu Phe Asn Thr Gly Ala Leu  
 85 90 95

Tyr Thr Gln Ile Gly Thr Arg Cys Asp Arg Gln Thr Gln Ala Gly Leu  
 100 105 110

Glu Ser Ala Ile Asp Ala Phe Gln Arg Ala Ala Gly Val Leu Asn Tyr  
 115 120 125



Leu Lys Asp Thr Phe Thr His Thr Pro Ser Tyr Asp Met Ser Pro Ala  
130 135 140

Met Leu Ser Val Leu Val Lys Met Met Leu Ala Gln Ala Gln Glu Ser  
145 150 155 160

Val Phe Glu Lys Ile Ser Leu Pro Gly Ile Arg Asn Glu Phe Phe Met  
165 170 175

Leu Val Lys Val Ala Gln Glu Ala Ala Lys Val Gly Glu Val Tyr Gln  
180 185 190

Gln Leu His Ala Ala Met Ser Gln Ala Pro Val Lys Glu Asn Ile Pro  
195 200 205

Tyr Ser Trp Ala Ser Leu Ala Cys Val Lys Ala His His Tyr Ala Ala  
210 215 220

Leu Ala His Tyr Phe Thr Ala Ile Leu Leu Ile Asp His Gln Val Lys  
225 230 235 240

Pro Gly Thr Asp Leu Asp His Gln Glu Lys Cys Leu Ser Gln Leu Tyr  
245 250 255

Asp His Met Pro Glu Gly Leu Thr Pro Leu Ala Thr Leu Lys Asn Asp  
260 265 270

Gln Gln Arg Arg Gln Leu Gly Lys Ser His Leu Arg Arg Ala Met Ala  
275 280 285

His His Glu Glu Ser Val Arg Glu Ala Ser Leu Cys Lys Lys Leu Arg  
290 295 300

Ser Ile Glu Val Leu Gln Lys Val Leu Cys Ala Ala Gln Glu Arg Ser  
305 310 315 320

Arg Leu Thr Tyr Ala Gln His Gln Glu Glu Asp Asp Leu Leu Asn Leu  
325 330 335

Ile Asp Ala Pro Ser Val Val Ala Lys Thr Glu Gln Glu Val Asp Ile  
340 345 350

Ile Leu Pro Gln Phe Ser Lys Leu Thr Val Thr Asp Phe Phe Gln Lys  
 355 360 365

Leu Gly Pro Leu Ser Val Phe Ser Ala Asn Lys Arg Trp Thr Pro Pro  
 370 375 380

Arg Ser Ile Arg Phe Thr Ala Glu Glu Gly Asp Leu Gly Phe Thr Leu  
 385 390 395 400

Arg Gly Asn Ala Pro Val Gln Val His Phe Leu Asp Pro Tyr Cys Ser  
 405 410 415

Ala Ser Val Ala Gly Ala Arg Glu Gly Asp Tyr Ile Val Ser Ile Gln  
 420 425 430

Leu Val Asp Cys Lys Trp Leu Thr Leu Ser Glu Val Met Lys Leu Leu  
 435 440 445

Lys Ser Phe Gly Glu Asp Glu Ile Glu Met Lys Val Val Ser Leu Leu  
 450 455 460

Asp Ser Thr Ser Ser Met His Asn Lys Ser Ala Thr Tyr Ser Val Gly  
 465 470 475 480

Met Gln Lys Thr Tyr Ser Met Ile Cys Leu Ala Ile Asp Asp Asp Asp  
 485 490 495

Lys Thr Asp Lys Thr Lys Lys Ile Ser Lys Lys Leu Ser Phe Leu Ser  
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Trp Gly Thr Asn Lys Asn Arg Gln Lys Ser Ala Ser Thr Leu Cys Leu  
 515 520 525

Pro Ser Val Gly Ala Ala Arg Pro Gln Val Lys Lys Lys Leu Pro Ser  
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Pro Phe Ser Leu Leu Asn Ser Asp Ser Ser Trp Tyr  
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<400> 279

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Asp Arg Tyr Asp Asp Tyr Arg Asp Tyr Asp Ser Pro Glu Arg Glu Arg  
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Glu Arg Arg Asn Ser Asp Arg Ser Glu Asp Gly Tyr His Ser Asp Gly  
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Asp Tyr Gly Glu His Asp Tyr Arg His Asp Ile Ser Asp Glu Arg Glu  
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Ser Lys Thr Ile Met Leu Arg Gly Leu Pro Ile Thr Ile Thr Glu Ser  
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Lys Val Tyr Ser Gln Ser Lys Asn Ile Pro Pro Ser Gln Pro Ala Ser  
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Thr Thr Val Ser Thr Ser Leu Pro Val Pro Asn Pro Ser Leu Pro Tyr  
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Glu Gln Thr Ile Val Phe Pro Gly Ser Thr Gly His Ile Val Val Thr  
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Ser Ala Ser Ser Thr Ser Val Thr Gly Gln Val Leu Gly Gly Pro His  
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Cys Gly Leu Lys Arg Lys Ser Glu Glu Ile Glu Asn Thr Ser Ser Val  
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Gly Ser Asn Ser Glu Gly Asp Tyr Gln Leu Val Gln His Glu Val Leu  
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Cys Ser Met Thr Asn Thr Tyr Glu Val Leu Glu Phe Leu Gly Arg Gly  
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Thr Phe Gly Gln Val Val Lys Cys Trp Lys Arg Gly Thr Asn Glu Ile  
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Val Ala Ile Lys Ile Leu Lys Asn Arg Pro Ser Tyr Ala Arg Gln Gly  
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Gln Ile Glu Val Ser Ile Leu Ala Arg Leu Ser Thr Glu Ser Ala Asp  
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Asp Tyr Asn Phe Val Arg Ala Tyr Glu Cys Phe Gln His Lys Asn His  
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Thr Cys Leu Val Phe Glu Met Leu Glu Gln Asn Leu Tyr Asp Phe Leu  
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Lys Gln Asn Lys Phe Ser Pro Leu Pro Leu Lys Tyr Ile Arg Pro Val  
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Leu Gln Gln Val Ala Thr Ala Leu Met Lys Leu Lys Ser Leu Gly Leu  
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Ile His Ala Asp Leu Lys Pro Glu Asn Ile Met Leu Val Asp Pro Ser  
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Arg Gln Pro Tyr Arg Val Lys Val Ile Asp Phe Gly Ser Ala Ser His  
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Val Ser Lys Ala Val Cys Ser Thr Tyr Leu Gln Ser Arg Tyr Tyr Arg  
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Ala Pro Glu Ile Ile Leu Gly Leu Pro Phe Cys Glu Ala Ile Asp Met  
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Trp Ser Leu Gly Cys Val Ile Ala Glu Leu Phe Leu Gly Trp Pro Leu  
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Tyr Pro Gly Ala Ser Glu Tyr Asp Gln Ile Arg Tyr Ile Ser Gln Thr  
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Gln Gly Leu Pro Ala Glu Tyr Leu Leu Ser Ala Gly Thr Lys Thr Thr  
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Lys Thr Pro Asp Asp His Glu Ala Glu Thr Gly Ile Lys Ser Lys Glu  
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Ala Arg Lys Tyr Ile Phe Asn Cys Leu Asp Asp Met Ala Gln Val Asn  
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Met Thr Thr Asp Leu Glu Gly Ser Asp Met Leu Val Glu Lys Ala Asp  
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Asp Lys Arg Ile Thr Pro Ile Glu Thr Leu Asn His Pro Phe Val Thr  
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Met Thr His Leu Leu Asp Phe Pro His Ser Thr His Val Lys Ser Cys  
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Phe Gln Asn Met Glu Ile Cys Lys Arg Arg Val Asn Met Tyr Asp Thr  
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Ser Thr Asn Leu Thr Met Thr Phe Asn Asn Gln Leu Thr Thr Val His  
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Asn Gln Ala Pro Ser Ser Thr Ser Ala Thr Ile Ser Leu Ala Asn Pro  
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Ala Ser Met Ala Ala Val Ala Gln Arg Ser Met Pro Leu Gln Thr Gly  
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Thr Ala Gln Ile Cys Ala Arg Pro Asp Pro Phe Gln Gln Ala Leu Ile  
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Val Cys Pro Pro Gly Phe Gln Gly Leu Gln Ala Ser Pro Ser Lys His  
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Ala Gly Tyr Ser Val Arg Met Glu Asn Ala Val Pro Ile Val Thr Gln  
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Ala Pro Gly Ala Gln Pro Leu Gln Ile Gln Pro Gly Leu Leu Ala Gln

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Asn Thr His Ala His Gly Ser His Tyr Asn Pro Ile Met Gln Gln Pro  
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Ala Leu Leu Thr Gly His Val Thr Leu Pro Ala Ala Gln Pro Leu Asn  
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Val Gly Val Ala His Val Met Arg Gln Gln Pro Thr Ser Thr Thr Ser  
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Ser Arg Lys Ser Lys Gln His Gln Ser Ser Val Arg Asn Val Ser Thr  
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Arg Val Lys Glu Asn Thr Pro Pro Arg Cys Ala Met Val His Ser Ser  
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Glu Glu Glu Gln Lys His Ala Pro Thr Ser Thr Val Ser Lys Gln Arg  
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Ser Ser Ser Asn Thr Ser Pro Tyr Ser Val Gln Gln Arg Ala Gly His  
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Asn Asn Ala Asn Ala Phe Asp Thr Lys Gly Ser Leu Glu Asn His Cys  
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Thr Gly Asn Pro Arg Thr Ile Ile Val Pro Pro Leu Lys Thr Gln Ala  
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Ser Glu Val Leu Val Glu Cys Asp Ser Leu Val Pro Val Asn Thr Ser  
980 985 990

His His Ser Ser Ser Tyr Lys Ser Lys Ser Ser Ser Asn Val Thr Ser  
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Thr Ser Gly His Ser Ser Gly Ser Ser Ser Gly Ala Ile Thr Tyr  
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Arg Gln Gln Arg Pro Gly Pro His Phe Gln Gln Gln Gln Pro Leu  
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Asn Leu Ser Gln Ala Gln Gln His Ile Thr Thr Asp Arg Thr Gly  
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Ser His Arg Arg Gln Gln Ala Tyr Ile Thr Pro Thr Met Ala Gln  
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Ala Pro Tyr Ser Phe Pro His Asn Ser Pro Ser His Gly Thr Val  
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His Pro His Leu Ala Ala Ala Ala Ala Ala Ala His Leu Pro Thr  
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Gln Pro His Leu Tyr Thr Tyr Thr Ala Pro Ala Ala Leu Gly Ser  
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Thr Gly Thr Val Ala His Leu Val Ala Ser Gln Gly Ser Ala Arg  
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His Thr Val Gln His Thr Ala Tyr Pro Ala Ser Ile Val His Gln  
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Val Pro Val Ser Met Gly Pro Arg Val Leu Pro Ser Pro Thr Ile  
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His Pro Ser Gln Tyr Pro Ala Gln Phe Ala His Gln Thr Tyr Ile  
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Ser Ala Ser Pro Ala Ser Thr Val Tyr Thr Gly Tyr Pro Leu Ser  
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Thr Leu Arg Arg Ser Gln Ser Asp Arg Thr Glu Tyr Asn Gln Lys Leu  
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Gln Glu Lys Met Thr Pro Gln Gly Glu Cys Ser Val Ala Glu Thr Leu  
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Lys Ile Ile Lys Glu Leu Ile Gln Thr Glu Lys Asp Tyr Leu Asn Asp  
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Leu Glu Leu Cys Val Arg Glu Val Val Gln Pro Leu Arg Asn Lys Lys  
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Thr Asp Arg Leu Asp Val Asp Ser Leu Phe Ser Asn Ile Glu Ser Val

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His Gln Ile Ser Ala Lys Leu Leu Ser Leu Leu Glu Glu Ala Thr Thr  
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Asp Val Glu Pro Ala Met Gln Val Ile Gly Glu Val Phe Leu Gln Ile  
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Asp Phe Leu Asn Ser Phe Ser Thr Leu Leu Lys Gln Ser Ser His Cys  
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Gln Glu Ala Gly Lys Arg Gly Arg Leu Glu Asp Ala Ser Ile Leu Cys  
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Leu Asp Lys Glu Asp Asp Phe Leu His Val Tyr Tyr Phe Phe Pro Lys  
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Arg Thr Thr Ser Leu Ile Leu Pro Gly Ile Ile Lys Ala Ala Ala His  
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Val Leu Tyr Glu Thr Glu Val Glu Val Ser Leu Met Pro Pro Cys Phe  
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His Asn Asp Cys Ser Glu Phe Val Asn Gln Pro Tyr Leu Leu Tyr Ser  
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Val His Met Lys Ser Thr Lys Pro Ser Leu Ser Pro Ser Lys Pro Gln  
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Ser Ser Leu Val Ile Pro Thr Ser Leu Phe Cys Lys Thr Phe Pro Phe  
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His Phe Met Phe Asp Lys Asp Met Thr Ile Leu Gln Phe Gly Asn Gly  
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Glu Glu Tyr Phe Glu Ile Leu Thr Pro Lys Ile Asn Gln Thr Phe Ser  
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Gly Ile Met Thr Met Leu Asn Met Gln Phe Val Val Arg Val Arg Arg  
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Trp Asp Asn Ser Val Lys Lys Ser Ser Arg Val Met Asp Leu Lys Gly

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Gln Leu Trp Gln Gly Gln Val Val Gln Ala Lys Lys Phe Ser Asn Val 465 470 475 480		
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Gly Asp Ala Tyr Cys Val Ala Gly Gly Leu His Lys Glu Ser Asp Thr 530 535 540		
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Arg Tyr Cys Leu Phe Gly Asn Asn Val Thr Leu Ala Asn Lys Phe Glu  
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Ser Cys Ser Val Pro Arg Lys Ile Asn Val Ser Pro Thr Thr Tyr Arg  
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Leu Leu Lys Asp Cys Pro Gly Phe Val Phe Thr Pro Arg Ser Arg Glu  
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Leu Asp Ala Tyr Gln Gln Gly Thr Asn Ser Lys Pro Cys Phe Gln Lys  
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Ala Ala Gln Thr Met Ser Thr Ser Ala Pro Pro Pro Val Gly Ser Leu	65	70	75
Ser Gln Arg Lys Arg Gln Gln Tyr Ala Lys Ser Lys Lys Gln Gly Asn	85	90	95
Ser Ser Asn Ser Arg Pro Ala Arg Ala Leu Phe Cys Leu Ser Leu Asn	100	105	110
Asn Pro Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe	115	120	125
Asp Ile Phe Ile Leu Leu Ala Ile Phe Ala Asn Cys Val Ala Leu Ala	130	135	140
Ile Tyr Ile Pro Phe Pro Glu Asp Asp Ser Asn Ser Thr Asn His Asn	145	150	155
Leu Glu Lys Val Glu Tyr Ala Phe Leu Ile Ile Phe Thr Val Glu Thr	165	170	175
Phe Leu Lys Ile Ile Ala Tyr Gly Leu Leu Leu His Pro Asn Ala Tyr	180	185	190
Val Arg Asn Gly Trp Asn Leu Leu Asp Phe Val Ile Val Ile Val Gly	195	200	205
Leu Phe Ser Val Ile Leu Glu Gln Leu Thr Lys Glu Thr Glu Gly Gly	210	215	220
Asn His Ser Ser Gly Lys Ser Gly Gly Phe Asp Val Lys Ala Leu Arg	225	230	235
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Leu Gln Val Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu  
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His Ile Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile  
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Val Leu Tyr Trp Val Asn Asp Ala Ile Gly Trp Glu Trp Pro Trp Val  
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Tyr Phe Val Ser Leu Ile Ile Leu Gly Ser Phe Phe Val Leu Asn Leu  
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Val Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala  
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Lys Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu  
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Glu Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile  
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Asp Pro Glu Asn Glu Glu Glu Gly Gly Glu Glu Gly Lys Arg Asn Thr  
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Gly Gln Ala Ile Ser Lys Ser Lys Leu Ser Arg Arg Trp Arg Arg Trp  
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Ser Asn Leu Val Ala Ser Leu Leu Asn Ser Met Lys Ser Ile Ala Ser  
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Met Gln Leu Phe Gly Gly Lys Phe Asn Phe Asp Glu Thr Gln Thr Lys  
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Ile Leu Thr Gly Glu Asp Trp Asn Ala Val Met Tyr Asp Gly Ile Met  
725 730 735

Ala Tyr Gly Gly Pro Ser Ser Ser Gly Met Ile Val Cys Ile Tyr Phe  
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Ile Ile Leu Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu  
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Gln Lys Glu Glu Ala Glu Glu Lys Glu Arg Lys Lys Ile Ala Arg Lys  
785 790 795 800

Glu Ser Leu Glu Asn Lys Lys Asn Asn Lys Pro Glu Val Asn Gln Ile  
805 810 815

Ala Asn Ser Asp Asn Lys Val Thr Ile Asp Asp Tyr Arg Glu Glu Asp  
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Glu Asp Lys Asp Pro Tyr Pro Pro Cys Asp Val Pro Val Gly Glu Glu  
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Pro Arg Arg Ile Ser Glu Leu Asn Met Lys Glu Lys Ile Ala Pro Ile  
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Pro Glu Gly Ser Ala Phe Phe Ile Leu Ser Lys Thr Asn Pro Ile Arg  
885 890 895

Val Gly Cys His Lys Leu Ile Asn His His Ile Phe Thr Asn Leu Ile  
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Leu Val Phe Ile Met Leu Ser Ser Ala Ala Leu Ala Ala Glu Asp Pro

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ctgttcctgg cctccaggca ggcaaccctg acccagacc tgctcatcca gaatggggct	1740
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cacggcctca ggccagccct acattatcag agcaagagcc ggatagagga caaggctcag	1920
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cagaatgtgg gtgaggggtg cgcctatgag gctgagcttc gggtcaccgc ccctccagag	2100
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 <212> PRT  
 <213> human organism

<400> 292

Met Gly Ser Arg Thr Pro Glu Ser Pro Leu His Ala Val Gln Leu Arg  
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Trp Gly Pro Arg Arg Arg Pro Pro Leu Leu Pro Leu Leu Leu Leu Leu  
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Leu Pro Pro Pro Pro Arg Val Gly Gly Phe Asn Leu Asp Ala Glu Ala  
 35 40 45

Pro Ala Val Leu Ser Gly Pro Pro Gly Ser Phe Phe Gly Phe Ser Val  
 50 55 60

Glu Phe Tyr Arg Pro Gly Thr Asp Gly Val Ser Val Leu Val Gly Ala  
 65 70 75 80

Pro Lys Ala Asn Thr Ser Gln Pro Gly Val Leu Gln Gly Gly Ala Val  
 85 90 95

Tyr Leu Cys Pro Trp Gly Ala Ser Pro Thr Gln Cys Thr Pro Ile Glu  
 100 105 110

Phe Asp Ser Lys Gly Ser Arg Leu Leu Glu Ser Ser Leu Ser Ser Ser  
115 120 125

Glu Gly Glu Glu Pro Val Glu Tyr Lys Ser Leu Gln Trp Phe Gly Ala  
130 135 140

Thr Val Arg Ala His Gly Ser Ser Ile Leu Ala Cys Ala Pro Leu Tyr  
145 150 155 160

Ser Trp Arg Thr Glu Lys Glu Pro Leu Ser Asp Pro Val Gly Thr Cys  
165 170 175

Tyr Leu Ser Thr Asp Asn Phe Thr Arg Ile Leu Glu Tyr Ala Pro Cys  
180 185 190

Arg Ser Asp Phe Ser Trp Ala Ala Gly Gln Gly Tyr Cys Gln Gly Gly  
195 200 205

Phe Ser Ala Glu Phe Thr Lys Thr Gly Arg Val Val Leu Gly Gly Pro  
210 215 220

Gly Ser Tyr Phe Trp Gln Gly Gln Ile Leu Ser Ala Thr Gln Glu Gln  
225 230 235 240

Ile Ala Glu Ser Tyr Tyr Pro Glu Tyr Leu Ile Asn Leu Val Gln Gly  
245 250 255

Gln Leu Gln Thr Arg Gln Ala Ser Ser Ile Tyr Asp Asp Ser Tyr Leu  
260 265 270

Gly Tyr Ser Val Ala Val Gly Glu Phe Ser Gly Asp Asp Thr Glu Asp  
275 280 285

Phe Val Ala Gly Val Pro Lys Gly Asn Leu Thr Tyr Gly Tyr Val Thr  
290 295 300

Ile Leu Asn Gly Ser Asp Ile Arg Ser Leu Tyr Asn Phe Ser Gly Glu  
305 310 315 320

Gln Met Ala Ser Tyr Phe Gly Tyr Ala Val Ala Ala Thr Asp Val Asn  
325 330 335

Gly Asp Gly Leu Asp Asp Leu Leu Val Gly Ala Pro Leu Leu Met Asp  
340 345 350

Arg Thr Pro Asp Gly Arg Pro Gln Glu Val Gly Arg Val Tyr Val Tyr  
355 360 365

Leu Gln His Pro Ala Gly Ile Glu Pro Thr Pro Thr Leu Thr Leu Thr  
370 375 380

Gly His Asp Glu Phe Gly Arg Phe Gly Ser Ser Leu Thr Pro Leu Gly  
385 390 395 400

Asp Leu Asp Gln Asp Gly Tyr Asn Asp Val Ala Ile Gly Ala Pro Phe  
405 410 415

Gly Gly Glu Thr Gln Gln Gly Val Val Phe Val Phe Pro Gly Gly Pro  
420 425 430

Gly Gly Leu Gly Ser Lys Pro Ser Gln Val Leu Gln Pro Leu Trp Ala  
435 440 445

Ala Ser His Thr Pro Asp Phe Phe Gly Ser Ala Leu Arg Gly Gly Arg  
450 455 460

Asp Leu Asp Gly Asn Gly Tyr Pro Asp Leu Ile Val Gly Ser Phe Gly  
465 470 475 480

Val Asp Lys Ala Val Val Tyr Arg Gly Arg Pro Ile Val Ser Ala Ser  
485 490 495

Ala Ser Leu Thr Ile Phe Pro Ala Met Phe Asn Pro Glu Glu Arg Ser  
500 505 510

Cys Ser Leu Glu Gly Asn Pro Val Ala Cys Ile Asn Leu Ser Phe Cys  
515 520 525

Leu Asn Ala Ser Gly Lys His Val Ala Asp Ser Ile Gly Phe Thr Val  
530 535 540

Glu Leu Gln Leu Asp Trp Gln Lys Gln Lys Gly Gly Val Arg Arg Ala  
545 550 555 560

Leu Phe Leu Ala Ser Arg Gln Ala Thr Leu Thr Gln Thr Leu Leu Ile

565

570

575

Gln Asn Gly Ala Arg Glu Asp Cys Arg Glu Met Lys Ile Tyr Leu Arg  
580 585 590

Asn Glu Ser Glu Phe Arg Asp Lys Leu Ser Pro Ile His Ile Ala Leu  
595 600 605

Asn Phe Ser Leu Asp Pro Gln Ala Pro Val Asp Ser His Gly Leu Arg  
610 615 620

Pro Ala Leu His Tyr Gln Ser Lys Ser Arg Ile Glu Asp Lys Ala Gln  
625 630 635 640

Ile Leu Leu Asp Cys Gly Glu Asp Asn Ile Cys Val Pro Asp Leu Gln  
645 650 655

Leu Glu Val Phe Gly Glu Gln Asn His Val Tyr Leu Gly Asp Lys Asn  
660 665 670

Ala Leu Asn Leu Thr Phe His Ala Gln Asn Val Gly Glu Gly Gly Ala  
675 680 685

Tyr Glu Ala Glu Leu Arg Val Thr Ala Pro Pro Glu Ala Glu Tyr Ser  
690 695 700

Gly Leu Val Arg His Pro Gly Asn Phe Ser Ser Leu Ser Cys Asp Tyr  
705 710 715 720

Phe Ala Val Asn Gln Ser Arg Leu Leu Val Cys Asp Leu Gly Asn Pro  
725 730 735

Met Lys Ala Gly Ala Ser Leu Trp Gly Gly Leu Arg Phe Thr Val Pro  
740 745 750

His Leu Arg Asp Thr Lys Lys Thr Ile Gln Phe Asp Phe Gln Ile Leu  
755 760 765

Ser Lys Asn Leu Asn Asn Ser Gln Ser Asp Val Val Ser Phe Arg Leu  
770 775 780

Ser Val Glu Ala Gln Ala Gln Val Thr Leu Asn Gly Val Ser Lys Pro  
785 790 795 800

Glu Ala Val Leu Phe Pro Val Ser Asp Trp His Pro Arg Asp Gln Pro  
805 810 815

Gln Lys Glu Glu Asp Leu Gly Pro Ala Val His His Val Tyr Glu Leu  
820 825 830

Ile Asn Gln Gly Pro Ser Ser Ile Ser Gln Gly Val Leu Glu Leu Ser  
835 840 845

Cys Pro Gln Ala Leu Glu Gly Gln Gln Leu Leu Tyr Val Thr Arg Val  
850 855 860

Thr Gly Leu Asn Cys Thr Thr Asn His Pro Ile Asn Pro Lys Gly Leu  
865 870 875 880

Glu Leu Asp Pro Glu Gly Ser Leu His His Gln Gln Lys Arg Glu Ala  
885 890 895

Pro Ser Arg Ser Ser Ala Ser Ser Gly Pro Gln Ile Leu Lys Cys Pro  
900 905 910

Glu Ala Glu Cys Phe Arg Leu Arg Cys Glu Leu Gly Pro Leu His Gln  
915 920 925

Gln Glu Ser Gln Ser Leu Gln Leu His Phe Arg Val Trp Ala Lys Thr  
930 935 940

Phe Leu Gln Arg Glu His Gln Pro Phe Ser Leu Gln Cys Glu Ala Val  
945 950 955 960

Tyr Lys Ala Leu Lys Met Pro Tyr Arg Ile Leu Pro Arg Gln Leu Pro  
965 970 975

Gln Lys Glu Arg Gln Val Ala Thr Ala Val Gln Trp Thr Lys Ala Glu  
980 985 990

Gly Ser Tyr Gly Val Pro Leu Trp Ile Ile Ile Leu Ala Ile Leu Phe  
995 1000 1005

Gly Leu Leu Leu Gly Leu Leu Ile Tyr Ile Leu Tyr Lys Leu  
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Gly Phe Phe Lys Arg Ser Leu Pro Tyr Gly Thr Ala Met Glu Lys  
 1025 1030 1035

Ala Gln Leu Lys Pro Pro Ala Thr Ser Asp Ala  
 1040 1045

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 <212> DNA  
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<400> 293  
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 agatccagag gactcccagc gaacggacga ggggtgacaat agagtgtgggt gtcattgtttg 180  
 tgagagagaa aacacttttc agtgccagaa cccaaggagg tgcaaatgga cagagccata 240  
 ctgcgttata gcggccgtga aaatatattcc acgttttttc atgggttgca agcagtgtctc 300  
 cgctgggtgt gcagcgatgg agagacccaa gccagaggag aagcggtttc tcctggaaga 360  
 gcccatgccc ttcttttacc tcaagtgttg taaaattcgc tactgcaatt tagagggggcc 420  
 acctatcaac tcatcagtgt tcaaagaata tgctgggagc atgggtgaga gctgtgggtg 480  
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 agccacggga ctgccacaga ctgagccttc cggagcatgg actcgctcca gaccgttgtc 600  
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 aaatcaaacc ttgtaactca tttattgctg atggccactc ttttccttga ctcccctctg 840  
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 accagctggc acaggtgcac agattcataa attccacac gtgtgtgttc aacatctgaa 1200  
 acttaggcca agtagagagc atcagggtaa atggcgttca tttctctgtt aagatgcagc 1260

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 ttcaaaagtt cacgaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 1373

<210> 294  
 <211> 165  
 <212> PRT  
 <213> human organism

<400> 294

Met Ala Leu Leu Ala Leu Leu Val Val Ala Leu Pro Arg Val Trp  
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Thr Asp Ala Asn Leu Thr Ala Arg Gln Arg Asp Pro Glu Asp Ser Gln  
 20 25 30

Arg Thr Asp Glu Gly Asp Asn Arg Val Trp Cys His Val Cys Glu Arg  
 35 40 45

Glu Asn Thr Phe Glu Cys Gln Asn Pro Arg Arg Cys Lys Trp Thr Glu  
 50 55 60

Pro Tyr Cys Val Ile Ala Ala Val Lys Ile Phe Pro Arg Phe Phe Met  
 65 70 75 80

Val Ala Lys Gln Cys Ser Ala Gly Cys Ala Ala Met Glu Arg Pro Lys  
 85 90 95

Pro Glu Glu Lys Arg Phe Leu Leu Glu Glu Pro Met Pro Phe Phe Tyr  
 100 105 110

Leu Lys Cys Cys Lys Ile Arg Tyr Cys Asn Leu Glu Gly Pro Pro Ile  
 115 120 125

Asn Ser Ser Val Phe Lys Glu Tyr Ala Gly Ser Met Gly Glu Ser Cys  
 130 135 140

Gly Gly Leu Trp Leu Ala Ile Leu Leu Leu Leu Ala Ser Ile Ala Ala  
 145 150 155 160

Gly Leu Ser Leu Ser  
 165